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Val Glu Thr Arg Thr Leu His Ser Thr Phe Gln Pro Asn Ile Ser Gln	
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Pro Gly Pro Pro Phe Asn Ile Thr Pro Arg Lys Ala Lys Arg Tyr Tyr	
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Ser Ile Thr Gly Glu Glu Met Ser Asp Ile Tyr Val Lys Gly Trp Ile	
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Pro Gly Asn Glu Glu Asn Lys Gln Lys Thr Asp Val Arg Tyr Arg Ser	
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Leu Asp Gly Glu Gly Asn Phe Asn Trp Arg Phe Val Phe Pro Phe Asp	
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Tyr Leu Pro Ala Glu Gln Leu Cys Ile Val Ala Lys Lys Glu His Phe	
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Trp Ser Ile Asp Gln Thr Glu Phe Arg Ile Pro Pro Arg Leu Ile Ile	
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Gln Ile Trp Asp Asn Asp Lys Phe Ser Leu Asp Asp Tyr Leu Gly Phe	
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Pro Ala Gly Lys Gly Arg Asp Glu Pro Asn Met Asn Pro Lys Leu Asp	
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Leu Pro Asn Arg Pro Glu Thr Ser Phe Leu Trp Phe Thr Asn Pro Cys	
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Lys Thr Met Lys Phe Ile Val Trp Arg Arg Phe Lys Trp Val Ile Ile	
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Ser Met Met Lys Ile Pro His Gln Thr Gln Lys Lys Arg Ser Leu Glu
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Asp Pro Asn Ser Arg Pro Arg Arg Pro Phe Leu Ser Phe Leu Cys Tyr
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Pro Arg Phe Arg Cys Leu Phe Cys Leu Gln Phe Ala Ile Pro Ala Ser
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Arg Met Glu Gln Leu Asn Glu Leu Glu Leu Leu Met Glu Lys Ser Phe
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Trp Glu Glu Ala Glu Leu Pro Ala Glu Leu Phe Gln Lys Lys Val Val
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Ala Ser Phe Pro Arg Thr Val Leu Ser Thr Gly Met Asp Asn Arg Tyr
93 98 103 108

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Ile Ile His Leu Glu Gly Asp Cys Thr Ser Asp Thr Trp Ile Ile Asp	
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Lys Asp Phe Gly Tyr Leu Ile Leu Tyr Pro Asp Met Leu Ile Ser Gly	
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Glu Thr Phe Arg Ser Ser Asp Pro Ala Thr Arg Gln Met Leu Ile Gly	
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Thr Val Leu His Glu Val Phe Gln Lys Ala Ile Asn Asn Ser Phe Ala	
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His Leu Lys Glu Met Tyr Arg Leu Asn Leu Ser Gln Asp Glu Ile Lys	
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Ala Gln Leu Leu Trp Pro Ala Gly Leu Gly Gly Pro Gly Gly Ser Arg				
76	81	86	91	
gcg gct gtc ctt gtc caa cag tgg gtc agt tac gcc gac acg gag tta				580
Ala Ala Val Leu Val Gln Gln Trp Val Ser Tyr Ala Asp Thr Glu Leu				
92	97	102	107	
ata cca gct gcc tgt gga gca acg ctg ccg gcc ctg gga ctc cga agc				628
Ile Pro Ala Ala Cys Gly Ala Thr Leu Pro Ala Leu Gly Leu Arg Ser				
108	113	118	123	
tcg gcc cag gac ccc cag gct gtg ctg ggg gcc ctg ggc agg gcc ctg				676
Ser Ala Gln Asp Pro Gln Ala Val Leu Gly Ala Leu Gly Arg Ala Leu				
124	129	134	139	
agc ccc ttg gag gag tgg ctt cgg ctg cac acc tac ttg gcc ggg gag				724
Ser Pro Leu Glu Glu Trp Leu Arg Leu His Thr Tyr Leu Ala Gly Glu				
140	145	150	155	
gcc ccc act ctg gct gac ctg gcg gct gtc aca gcc ttg ctg ctg cct				772
Ala Pro Thr Leu Ala Asp Leu Ala Ala Val Thr Ala Leu Leu Leu Pro				
156	161	166	171	
ttc cga tac gtc cta gac cca cct gcc cgc cgg atc tgg aat aat gtg				820
Phe Arg Tyr Val Leu Asp Pro Pro Ala Arg Arg Ile Trp Asn Asn Val				
172	177	182	187	
act cgc tgg ttt gtc acg tgt gtc cgg cag cca gaa ttc cga gcc gtg				868
Thr Arg Trp Phe Val Thr Cys Val Arg Gln Pro Glu Phe Arg Ala Val				
188	193	198	203	
cta gga gaa gtg gtt cta tac tca gga gcc agg cct ctc tct cat cag				916
Leu Gly Glu Val Val Leu Tyr Ser Gly Ala Arg Pro Leu Ser His Gln				
204	209	214	219	
cca ggc ccc gag gct cct gcc ctc cca aag aca gct gct cag ctc aag				964
Pro Gly Pro Glu Ala Pro Ala Leu Pro Lys Thr Ala Ala Gln Leu Lys				
220	225	230	235	
aaa gag gca aag aaa cgg gag aag cta gag aaa ttc caa cag aag cag				1012
Lys Glu Ala Lys Lys Arg Glu Lys Leu Glu Lys Phe Gln Gln Lys Gln				
236	241	246	251	
aag atc caa cag cag cag cca cct cca ggg gag aag aaa cca aaa cca				1060
Lys Ile Gln Gln Gln Gln Pro Pro Pro Gly Glu Lys Lys Pro Lys Pro				
252	257	262	267	
gag aag agg gag aaa cgg gat cct ggg gtc att acc tat gac ctc cca				1108
Glu Lys Arg Glu Lys Arg Asp Pro Gly Val Ile Thr Tyr Asp Leu Pro				
268	273	278	283	
acc cca ccc ggg gaa aag aaa gat gtc agt ggc ccc atg ccc gac tcc				1156
Thr Pro Pro Gly Glu Lys Lys Asp Val Ser Gly Pro Met Pro Asp Ser				
284	289	294	299	

tac agc cct cgg tat gtg gag gct gcc tgg tac cct tgg tgg gag cag	1204
Tyr Ser Pro Arg Tyr Val Glu Ala Ala Trp Tyr Pro Trp Trp Glu Gln	
300 305 310 315	
cag ggc ttc ttc aag cca gag tat ggg cgt cct aat gtg tca gca gca	1252
Gln Gly Phe Phe Lys Pro Glu Tyr Gly Arg Pro Asn Val Ser Ala Ala	
316 321 326 331	
aat ccc cga ggt gtc ttc atg atg tgc atc cca ccc ccc aat gtg aca	1300
Asn Pro Arg Gly Val Phe Met Met Cys Ile Pro Pro Pro Asn Val Thr	
332 337 342 347	
ggc tcc ctg cac ctg ggc cat gca ctc acc aac gcc atc cag gac tcc	1348
Gly Ser Leu His Leu Gly His Ala Leu Thr Asn Ala Ile Gln Asp Ser	
348 353 358 363	
ctg act cga tgg cac cgc atg cgt ggg gag acc acc ctg tgg aac cct	1396
Leu Thr Arg Trp His Arg Met Arg Gly Glu Thr Thr Leu Trp Asn Pro	
364 369 374 379	
ggc tgt gac cat gca ggt att gcc acc cag gtg gtg gtg gag aag aag	1444
Gly Cys Asp His Ala Gly Ile Ala Thr Gln Val Val Val Glu Lys Lys	
380 385 390 395	
cta tgg cgt gag cag gga ctg agc cgg cac cag ctg ggc cgc gag gcc	1492
Leu Trp Arg Glu Gln Gly Leu Ser Arg His Gln Leu Gly Arg Glu Ala	
396 401 406 411	
ttt cta cag gaa gtc tgg aag tgg aag gag gag aaa ggt gac cgg att	1540
Phe Leu Gln Glu Val Trp Lys Trp Lys Glu Glu Lys Gly Asp Arg Ile	
412 417 422 427	
tac cac cag ttg aag aag ctt ggc agc tcc ttg gac tgg gat cga gcc	1588
Tyr His Gln Leu Lys Lys Leu Gly Ser Ser Leu Asp Trp Asp Arg Ala	
428 433 438 443	
tgt ttc acc atg gac cct aaa ctc tca gca gct gtg aca gag gcc ttt	1636
Cys Phe Thr Met Asp Pro Lys Leu Ser Ala Ala Val Thr Glu Ala Phe	
444 449 454 459	
gtc cgg ctt cac gag gaa ggc atc atc tat cgc agt acc cgc ctt gtt	1684
Val Arg Leu His Glu Glu Gly Ile Ile Tyr Arg Ser Thr Arg Leu Val	
460 465 470 475	
aac tgg tcc tgc acc ctc aac tcc gcc atc tct gac att gag gtg gat	1732
Asn Trp Ser Cys Thr Leu Asn Ser Ala Ile Ser Asp Ile Glu Val Asp	
476 481 486 491	
aag aag gag ctg aca ggt cgc acc ctg ctc tcc gtg cct ggc tac aag	1780
Lys Lys Glu Leu Thr Gly Arg Thr Leu Leu Ser Val Pro Gly Tyr Lys	
492 497 502 507	
gag aag gtg gag ttc ggg gtc ctc gtg tcc ttt gcc tat aag gtc caa	1828
Glu Lys Val Glu Phe Gly Val Leu Val Ser Phe Ala Tyr Lys Val Gln	
508 513 518 523	

ggc tca gat agc gac gag gag gtg gtg gtg gca aca act cgg atc gag	1876
Gly Ser Asp Ser Asp Glu Glu Val Val Val Ala Thr Thr Arg Ile Glu	
524 529 534 539	
aca atg ctg gga gat gtg gct gta gct gtg cac ccc aaa gat acc aga	1924
Thr Met Leu Gly Asp Val Ala Val Ala Val His Pro Lys Asp Thr Arg	
540 545 550 555	
tac cag cac ctg aag ggg aag aac gtg atc cac cca ttc ctg tct cgg	1972
Tyr Gln His Leu Lys Gly Lys Asn Val Ile His Pro Phe Leu Ser Arg	
556 561 566 571	
agc ctt ccc att gtc ttc gat gaa ttt gtg gac atg gac ttt ggc aca	2020
Ser Leu Pro Ile Val Phe Asp Glu Phe Val Asp Met Asp Phe Gly Thr	
572 577 582 587	
ggg gct gtg aag atc acc ccc gca cat gac caa aat gac tat gaa gtt	2068
Gly Ala Val Lys Ile Thr Pro Ala His Asp Gln Asn Asp Tyr Glu Val	
588 593 598 603	
ggg cag cgg cac ggg ctg gag gcc atc agc atc atg gac tcc cgg ggg	2116
Gly Gln Arg His Gly Leu Glu Ala Ile Ser Ile Met Asp Ser Arg Gly	
604 609 614 619	
ggc cct cat caa tgt gcc tcc gcc ttt cct ggg cct gcc cag gtt tga	2164
Gly Pro His Gln Cys Ala Ser Ala Phe Pro Gly Pro Ala Gln Val *	
620 625 630 635	
ggccaggaaa gcggtgctgg tggcgctgaa ggagcgggga ctgttccgtg gcattgagga	2224
caaccccatg gtggtgccac tttgcaaccg gtcgaaggac gtggtagagc ctctgctgcg	2284
gccgcagtgg tacgttcgct gcggggagat ggcccaggct gccagcgccg ctgtgactcg	2344
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cttccccctta tccatttttg gctggcccaa ccagtcagaa gacctgagtg tgttctaccc	2704
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tcccagcgag gtggagaagg ccaaagaagg gcagaaagct gacttcccag cggggattcc	3004
tgaatgtggc accgatgctc tccggttttg attatgtgcc tacatgtccc agggctcgtga	3064

Met Lys

1

gac atg cca ctc cga att cat gtg cta ctt ggc cta gct atc act aca	285
Asp Met Pro Leu Arg Ile His Val Leu Leu Gly Leu Ala Ile Thr Thr	
3 8 13 18	
cta gta caa gct gta gat aaa aaa gtg gat tgt cca cgg tta tgt acg	333
Leu Val Gln Ala Val Asp Lys Lys Val Asp Cys Pro Arg Leu Cys Thr	
19 24 29 34	
tgt gaa atc agg cct tgg ttt aca ccc aga tcc att tat atg gaa gca	381
Cys Glu Ile Arg Pro Trp Phe Thr Pro Arg Ser Ile Tyr Met Glu Ala	
35 40 45 50	
tct aca gtg gat tgt aat gat tta ggt ctt tta act ttc cca gcc aga	429
Ser Thr Val Asp Cys Asn Asp Leu Gly Leu Leu Thr Phe Pro Ala Arg	
51 56 61 66	
ttg cca gct aac aca cag att ctt ctc cta cag act aac aat att gca	477
Leu Pro Ala Asn Thr Gln Ile Leu Leu Leu Gln Thr Asn Asn Ile Ala	
67 72 77 82	
aaa att gaa tac tcc aca gac ttt cca gta aac ctt act ggc ctg gat	525
Lys Ile Glu Tyr Ser Thr Asp Phe Pro Val Asn Leu Thr Gly Leu Asp	
83 88 93 98	
tta tct caa aac aat tta tct tca gtc acc aat att aat gta aaa aag	573
Leu Ser Gln Asn Asn Leu Ser Ser Val Thr Asn Ile Asn Val Lys Lys	
99 104 109 114	
atg cct cag ctc ctt tct gtg tac cta gag gaa aac aaa ctt act gaa	621
Met Pro Gln Leu Leu Ser Val Tyr Leu Glu Glu Asn Lys Leu Thr Glu	
115 120 125 130	
ctg cct gaa aaa tgt ctg tcc gaa ctg agc aac tta caa gaa ctc tat	669
Leu Pro Glu Lys Cys Leu Ser Glu Leu Ser Asn Leu Gln Glu Leu Tyr	
131 136 141 146	
att aat cac aac ttg ctt tct aca att tca cct gga gcc ttt att ggc	717
Ile Asn His Asn Leu Leu Ser Thr Ile Ser Pro Gly Ala Phe Ile Gly	
147 152 157 162	
cta cat aat ctt ctt cga ctt cat ctc aat tca aat aga ttg cag atg	765
Leu His Asn Leu Leu Arg Leu His Leu Asn Ser Asn Arg Leu Gln Met	
163 168 173 178	
atc aac agt aag tgg ttt gat gct ctt cca aat cta gag att ctg atg	813
Ile Asn Ser Lys Trp Phe Asp Ala Leu Pro Asn Leu Glu Ile Leu Met	
179 184 189 194	
att ggg gaa aat cca att atc aga atc aaa gac atg aac ttt aag cct	861
Ile Gly Glu Asn Pro Ile Ile Arg Ile Lys Asp Met Asn Phe Lys Pro	
195 / 200 205 210	
ctt atc aat ctt cgc agc ctg gtt ata gct ggt ata aac ctc aca gaa	909
Leu Ile Asn Leu Arg Ser Leu Val Ile Ala Gly Ile Asn Leu Thr Glu	

211	216	221	226	
ata cca gat aac gcc ttg gtt gga ctg gaa aac tta gaa agc atc tct				957
Ile Pro Asp Asn Ala Leu Val Gly Leu Glu Asn Leu Glu Ser Ile Ser				
227	232	237	242	
ttt tac gat aac agg ctt att aaa gta ccc cat gtt gct ctt caa aaa				1005
Phe Tyr Asp Asn Arg Leu Ile Lys Val Pro His Val Ala Leu Gln Lys				
243	248	253	258	
gtt gta aat ctc aaa ttt ttg gat cta aat aaa aat cct att aat aga				1053
Val Val Asn Leu Lys Phe Leu Asp Leu Asn Lys Asn Pro Ile Asn Arg				
259	264	269	274	
ata cga agg ggt gat ttt agc aat atg cta cac tta aaa gag ttg ggg				1101
Ile Arg Arg Gly Asp Phe Ser Asn Met Leu His Leu Lys Glu Leu Gly				
275	280	285	290	
ata aat aat atg cct gag ctg att tcc atc gat agt ctt gct gtg gat				1149
Ile Asn Asn Met Pro Glu Leu Ile Ser Ile Asp Ser Leu Ala Val Asp				
291	296	301	306	
aac ctg cca gat tta aga aaa ata gaa gct act aac aac cct aga ttg				1197
Asn Leu Pro Asp Leu Arg Lys Ile Glu Ala Thr Asn Asn Pro Arg Leu				
307	312	317	322	
tct tac att cac ccc aat gca ttt ttc aga ctc ccc aag ctg gaa tca				1245
Ser Tyr Ile His Pro Asn Ala Phe Phe Arg Leu Pro Lys Leu Glu Ser				
323	328	333	338	
ctc atg ctg aac agc aat gct ctc agt gcc ctg tac cat ggt acc att				1293
Leu Met Leu Asn Ser Asn Ala Leu Ser Ala Leu Tyr His Gly Thr Ile				
339	344	349	354	
gag tct ctg cca aac ctc aag gaa atc agc ata cac agt aac ccc atc				1341
Glu Ser Leu Pro Asn Leu Lys Glu Ile Ser Ile His Ser Asn Pro Ile				
355	360	365	370	
agg tgt gac tgt gtc atc cgt tgg atg aac atg aac aaa acc aac att				1389
Arg Cys Asp Cys Val Ile Arg Trp Met Asn Met Asn Lys Thr Asn Ile				
371	376	381	386	
cga ttc atg gag cca gat tca ctg ttt tgc gtg gac cca cct gaa ttc				1437
Arg Phe Met Glu Pro Asp Ser Leu Phe Cys Val Asp Pro Pro Glu Phe				
387	392	397	402	
caa ggt cag aat gtt cgg caa gtg cat ttc agg gac atg atg gaa att				1485
Gln Gly Gln Asn Val Arg Gln Val His Phe Arg Asp Met Met Glu Ile				
403	408	413	418	
tgt ctc cct ctt ata gct cct gag agc ttt cct tct aat cta aat gta				1533
Cys Leu Pro Leu Ile Ala Pro Glu Ser Phe Pro Ser Asn Leu Asn Val				
419	424	429	434	
gaa gct ggg agc tat gtt tcc ttt cac tgt aga gct act gca gaa cca				1581
Glu Ala Gly Ser Tyr Val Ser Phe His Cys Arg Ala Thr Ala Glu Pro				
435	440	445	450	

cag cct gaa atc tac tgg ata aca cct tct ggt caa aaa ctc ttg cct	1629
Gln Pro Glu Ile Tyr Trp Ile Thr Pro Ser Gly Gln Lys Leu Leu Pro	
451 456 461 466	
aat acc ctg aca gac aag ttc tat gtc cat tct gag gga aca cta gat	1677
Asn Thr Leu Thr Asp Lys Phe Tyr Val His Ser Glu Gly Thr Leu Asp	
467 472 477 482	
ata aat ggc gta act ccc aaa gaa ggg ggt tta tat act tgt ata gca	1725
Ile Asn Gly Val Thr Pro Lys Glu Gly Gly Leu Tyr Thr Cys Ile Ala	
483 488 493 498	
act aac cta gtt ggc gct gac ttg aag tct gtt atg atc aaa gtg gat	1773
Thr Asn Leu Val Gly Ala Asp Leu Lys Ser Val Met Ile Lys Val Asp	
499 504 509 514	
gga tct ttt cca caa gat aac aat ggc tct ttg aat att aaa ata aga	1821
Gly Ser Phe Pro Gln Asp Asn Asn Gly Ser Leu Asn Ile Lys Ile Arg	
515 520 525 530	
gat att cag gcc aat tca gtt ttg gtg tcc tgg aaa gca agt tct aaa	1869
Asp Ile Gln Ala Asn Ser Val Leu Val Ser Trp Lys Ala Ser Ser Lys	
531 536 541 546	
att ctc aaa tct agt gtt aaa tgg aca gcc ttt gtc aag act gaa aat	1917
Ile Leu Lys Ser Ser Val Lys Trp Thr Ala Phe Val Lys Thr Glu Asn	
547 552 557 562	
tct cat gct gcg caa agt gct cga ata cca tct gat gtc aag gta tat	1965
Ser His Ala Ala Gln Ser Ala Arg Ile Pro Ser Asp Val Lys Val Tyr	
563 568 573 578	
aat ctt act cat ctg aat cca tca act gag tat aaa att tgt att gat	2013
Asn Leu Thr His Leu Asn Pro Ser Thr Glu Tyr Lys Ile Cys Ile Asp	
579 584 589 594	
att ccc acc atc tat cag aaa aac aga aaa aaa tgt gta aat gtc acc	2061
Ile Pro Thr Ile Tyr Gln Lys Asn Arg Lys Lys Cys Val Asn Val Thr	
595 600 605 610	
acc aaa ggt ttg cac cct gat caa aaa gag tat gaa aag aat aat acc	2109
Thr Lys Gly Leu His Pro Asp Gln Lys Glu Tyr Glu Lys Asn Asn Thr	
611 616 621 626	
aca aca ctt atg gcc tgt ctt gga ggc ctt ctg ggg att att ggt gtg	2157
Thr Thr Leu Met Ala Cys Leu Gly Gly Leu Leu Gly Ile Ile Gly Val	
627 632 637 642	
ata tgt ctt atc agc tgc ctc tct cca gaa atg aac tgt gat ggt gga	2205
Ile Cys Leu Ile Ser Cys Leu Ser Pro Glu Met Asn Cys Asp Gly Gly	
643 648 653 658	
cac agc tat gtg agg aat tac tta cag aaa cca acc ttt gca tta ggt	2253
His Ser Tyr Val Arg Asn Tyr Leu Gln Lys Pro Thr Phe Ala Leu Gly	
659 664 669 674	

71	76	81	86	
gct gac cgg ctg gtc	cag atc act cag ttt ttt	cgt ttt gat ggc tgg		583
Ala Asp Arg Leu Val	Gln Ile Thr Gln Phe Phe	Arg Phe Asp Gly Trp		
87	92	97	102	
ctg atc aac atc gag	aac tcg ctg agt ctg	gcc gct gtg ggg aac atg		631
Leu Ile Asn Ile Glu	Asn Ser Leu Ser Leu	Ala Ala Val Gly Asn Met		
103	108	113	118	
cct cct ttc ctg cgg	tac ctc acc aca cag	ctg cac cgg cag gtc cca		679
Pro Pro Phe Leu Arg	Tyr Leu Thr Thr Gln	Leu His Arg Gln Val Pro		
119	124	129	134	
ggg ggc ctg gtg ctc	tgg tat gac agc gtg	gtg caa agt ggg cag ctc		727
Gly Gly Leu Val Leu	Trp Tyr Asp Ser Val	Val Gln Ser Gly Gln Leu		
135	140	145	150	
aaa tgg caa gac gaa	ctc aac cag cac aac	agg gtc ttc ttt gat tcc		775
Lys Trp Gln Asp Glu	Leu Asn Gln His Asn	Arg Val Phe Phe Asp Ser		
151	156	161	166	
tgc gac ggc ttc ttc	act aac tat aac tgg	cgg gag gag cac ttg gag		823
Cys Asp Gly Phe Phe	Thr Asn Tyr Asn Trp	Arg Glu Glu His Leu Glu		
167	172	177	182	
cgg atg ctg ggg cag	gct ggg gag cgc cgg	gct gat gtg tac gtg ggc		871
Arg Met Leu Gly Gln	Ala Gly Glu Arg Arg	Ala Asp Val Tyr Val Gly		
183	188	193	198	
gtg gat gtg ttt gct	cga ggg aac gtg gtc	gga ggc cga ttc gac aca		919
Val Asp Val Phe Ala	Arg Gly Asn Val Val	Gly Gly Arg Phe Asp Thr		
199	204	209	214	
gac aag gtg ggt ggt	ggc ttt cgt cca agg	gcc agc ggc cca gtg cct		967
Asp Lys Val Gly Gly	Gly Phe Arg Pro Arg	Ala Ser Gly Pro Val Pro		
215	220	225	230	
ccc ctg gga cct cat	ttc ctc atg gac ctt	cca ttc ccg tct gca cct		1015
Pro Leu Gly Pro His	Phe Leu Met Asp Leu	Pro Phe Pro Ser Ala Pro		
231	236	241	246	
caa agg aat gac agc	agc tgt tct tcc cag	agt ggg gat ccc gtg gca		1063
Gln Arg Asn Asp Ser	Ser Cys Ser Ser Gln	Ser Gly Asp Pro Val Ala		
247	252	257	262	
ctg aga aac agg tgt	cct gcc ccg gcc aag	cta tgt ccc cac tga aac		1111
Leu Arg Asn Arg Cys	Pro Ala Pro Ala Lys	Leu Cys Pro His *		
263	268	273		
ccctttcccg gctatttcta	caatcagata atgtattttt	gtgtgggtgt taccagacag		1171
aggcgctcg tttccccgct	gtccggtcct cggcgggcct	gggcctcctg tcccagctgc		1231
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Trp Glu Ser Val Glu Thr Lys Leu Asn Glu Arg/Lys Thr Lys Leu Glu
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Thr Leu Arg Phe His Gly Val Leu Pro Asp Asp Glu Asp Ala Leu Arg				
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ttg aag aag aga gta aag gag att gta cat aaa gcg ttt tgg gat tgc	511
Leu Lys Lys Arg Val Lys Glu Ile Val His Lys Ala Phe Trp Asp Cys	
100 105 110 115	
ttg agt gtg cag cta agt gaa gat ccc cca gca tat gac cat gct atc	559
Leu Ser Val Gln Leu Ser Glu Asp Pro Pro Ala Tyr Asp His Ala Ile	
116 121 126 131	
aaa ctt gta gga gaa atc aaa gag act ctc tta tct ttc ttg ctg cct	607
Lys Leu Val Gly Glu Ile Lys Glu Thr Leu Leu Ser Phe Leu Leu Pro	
132 137 142 147	
ggg cat act aga ctg aga aac cag ata aca gaa gtc ttg gat ctg gat	655
Gly His Thr Arg Leu Arg Asn Gln Ile Thr Glu Val Leu Asp Leu Asp	
148 153 158 163	
ctg ata aag cag gaa gca gag aat ggg gcg cta gac att tcc aag ctg	703
Leu Ile Lys Gln Glu Ala Glu Asn Gly Ala Leu Asp Ile Ser Lys Leu	
164 169 174 179	
gca gaa ttc att att ggc atg atg ggg aca ctg tgt gca cct gct cga	751
Ala Glu Phe Ile Ile Gly Met Met Gly Thr Leu Cys Ala Pro Ala Arg	
180 185 190 195	
gat gag gaa gtt aag aaa cta aag gac att aag gaa ata gtg ccc ctt	799
Asp Glu Glu Val Lys Lys Leu Lys Asp Ile Lys Glu Ile Val Pro Leu	
196 201 206 211	
ttc aga gaa att ttt tct gtg ttg gac cta atg aaa gtg gac atg gcc	847
Phe Arg Glu Ile Phe Ser Val Leu Asp Leu Met Lys Val Asp Met Ala	
212 217 222 227	
aac ttt gct atc agt agc atc agg cct cat ctc atg cag cag tca gtt	895
Asn Phe Ala Ile Ser Ser Ile Arg Pro His Leu Met Gln Gln Ser Val	
228 233 238 243	
gaa tac gaa agg aag aag ttt caa gag att ttg gag agg caa cca aat	943
Glu Tyr Glu Arg Lys Lys Phe Gln Glu Ile Leu Glu Arg Gln Pro Asn	
244 249 254 259	
tcc ctg gac ttt gtc acc cag tgg ctg gaa gaa gcc tca gag gac ctt	991
Ser Leu Asp Phe Val Thr Gln Trp Leu Glu Glu Ala Ser Glu Asp Leu	
260 265 270 275	
atg act cag aag tat aaa cac gcc ctg cca gtg ggg gga atg gct gct	1039
Met Thr Gln Lys Tyr Lys His Ala Leu Pro Val Gly Gly Met Ala Ala	
276 281 286 291	
ggc tct ggg gac atg ccc agg ctg agc cct gtt gct gtc cag aat tac	1087
Gly Ser Gly Asp Met Pro Arg Leu Ser Pro Val Ala Val Gln Asn Tyr	
292 297 302 307	

gct tac ctg aag ctt ctg aag tgg gac cac ctc cag agg ccg ttc ccc	1135
Ala Tyr Leu Lys Leu Leu Lys Trp Asp His Leu Gln Arg Pro Phe Pro	
308 313 318 323	
gaa aca gtt tta atg gac cag tct cgc ttc cac gag ctc cag ttg cag	1183
Glu Thr Val Leu Met Asp Gln Ser Arg Phe His Glu Leu Gln Leu Gln	
324 329 334 339	
ctg gaa caa ctg acc atc ctg ggg gct gtg ttg ctg gtc acc ttc agc	1231
Leu Glu Gln Leu Thr Ile Leu Gly Ala Val Leu Leu Val Thr Phe Ser	
340 345 350 355	
atg gca gcg cca gga att tcc agc cag gcc gac ttt gct gag aaa ctc	1279
Met Ala Ala Pro Gly Ile Ser Ser Gln Ala Asp Phe Ala Glu Lys Leu	
356 361 366 371	
aag atg att gtg aag att ttg cta aca gat atg cac ctg ccc tcc ttc	1327
Lys Met Ile Val Lys Ile Leu Leu Thr Asp Met His Leu Pro Ser Phe	
372 377 382 387	
cat ctg aag gac gtc ctc act acc atc ggg gag aag gtg tgc ctg gag	1375
His Leu Lys Asp Val Leu Thr Thr Ile Gly Glu Lys Val Cys Leu Glu	
388 393 398 403	
gtg agc agc tgc ctc tcc ctg tgt ggg tcc tct ccc ttc acc acg gac	1423
Val Ser Ser Cys Leu Ser Leu Cys Gly Ser Ser Pro Phe Thr Thr Asp	
404 409 414 419	
aag gag acc gtg ctc aag ggc cag atc cag gcc gtg gcc agt ccc gat	1471
Lys Glu Thr Val Leu Lys Gly Gln Ile Gln Ala Val Ala Ser Pro Asp	
420 425 430 435	
gac ccc att cgc agg atc atg gaa tct cga atc ctg acc ttc tta gaa	1519
Asp Pro Ile Arg Arg Ile Met Glu Ser Arg Ile Leu Thr Phe Leu Glu	
436 441 446 451	
acc tac ctt gcc tcg ggt cat cag aag cca ttg ccc aca gtc cct ggg	1567
Thr Tyr Leu Ala Ser Gly His Gln Lys Pro Leu Pro Thr Val Pro Gly	
452 457 462 467	
gga ctc agt cca gtt cag aga gag ctg gag gaa gtt gct att aaa ttt	1615
Gly Leu Ser Pro Val Gln Arg Glu Leu Glu Glu Val Ala Ile Lys Phe	
468 473 478 483	
gct cgc ctg gtc aac tat aac aag atg gtc ttc tgt ccc tac tac gat	1663
Ala Arg Leu Val Asn Tyr Asn Lys Met Val Phe Cys Pro Tyr Tyr Asp	
484 489 494 499	
gca atc ctg agt aag atc ctc gtc caa tcc taa cgtgtatg caccctacag	1714
Ala Ile Leu Ser Lys Ile Leu Val Gln Ser *	
500 505 510	
cagcagtatt actcactagc cacagaatac ctgttctgta ctctaattgtt gcattggaaa	1774
atggctatat agtacatgtc tattttaacag caccgattcc aaaggaaga atattgtgta	1834
tcactgttga aaagacttgt tgagaaatcc	1864

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 agccaactaa atcggcttgg atg att cgc gac ctg agc aag atg tac ccg 110
 Met Ile Arg Asp Leu Ser Lys Met Tyr Pro
 1 5
 cag acc aga cac ccg gca ccg cat cag cct gct caa ccc ttt aaa ttt 158
 Gln Thr Arg His Pro Ala Pro His Gln Pro Ala Gln Pro Phe Lys Phe
 11 16 21 26
 aca att tcc gaa tcc tgt gat cgg att aag gaa gag ttt cag ttt tta 206
 Thr Ile Ser Glu Ser Cys Asp Arg Ile Lys Glu Glu Phe Gln Phe Leu
 27 32 37 42
 cag gct caa tac cac agt ctg aag ctg gaa tgt gag aaa ctc gcc agt 254
 Gln Ala Gln Tyr His Ser Leu Lys Leu Glu Cys Glu Lys Leu Ala Ser
 43 48 53 58
 gag aag aca gag atg cag cgg cat tat gtc atg tat tat gaa atg tcc 302
 Glu Lys Thr Glu Met Gln Arg His Tyr Val Met Tyr Tyr Glu Met Ser
 59 64 69 74
 tat ggg ttg aat ata gaa atg cac aag cag gca gag att gtc aag agg 350
 Tyr Gly Leu Asn Ile Glu Met His Lys Gln Ala Glu Ile Val Lys Arg
 75 80 85 90
 ctg aat gct atc tgt gca caa gtc att cct ttc ctg tcc caa gag cac 398
 Leu Asn Ala Ile Cys Ala Gln Val Ile Pro Phe Leu Ser Gln Glu His
 91 96 101 106
 cag caa caa gtg gtg cag gct gtg gaa cgg gcc aag cag gtg acc atg 446
 Gln Gln Gln Val Val Gln Ala Val Glu Arg Ala Lys Gln Val Thr Met
 107 112 117 122
 gca gaa ctg aac gcc atc att ggg cag caa caa ctc cag gcc cag cat 494
 Ala Glu Leu Asn Ala Ile Ile Gly Gln Gln Gln Leu Gln Ala Gln His
 123 128 133 138
 /

tta tca cat gga cat ggt ctc ccc gta cct ctg act cca cac cct tca	542
Leu Ser His Gly His Gly Leu Pro Val Pro Leu Thr Pro His Pro Ser	
139 144 149 154	
ggg ctc cag ccc cct gcc att cca ccc atc ggt agc agt gcc ggg ctt	590
Gly Leu Gln Pro Pro Ala Ile Pro Pro Ile Gly Ser Ser Ala Gly Leu	
155 160 165 170	
ctg gcc ctc tcc agt gct cta gga ggt cag tcc cat ctt cca att aaa	638
Leu Ala Leu Ser Ser Ala Leu Gly Gly Gln Ser His Leu Pro Ile Lys	
171 176 181 186	
gat gag aag aag cac cat gac aat gat cac caa aga gac aga gac tcc	686
Asp Glu Lys Lys His His Asp Asn Asp His Gln Arg Asp Arg Asp Ser	
187 192 197 202	
atc aag agc tct tca gta tcc cca tca gcc agt ttc cga ggt gct gag	734
Ile Lys Ser Ser Ser Val Ser Pro Ser Ala Ser Phe Arg Gly Ala Glu	
203 208 213 218	
aag cac aga aac tcc gca gac tac tcc tca gag agc aaa aag cag aaa	782
Lys His Arg Asn Ser Ala Asp Tyr Ser Ser Glu Ser Lys Lys Gln Lys	
219 224 229 234	
act gaa gaa aag gaa att gca gct cgt tat gac agc gat ggt gag aaa	830
Thr Glu Glu Lys Glu Ile Ala Ala Arg Tyr Asp Ser Asp Gly Glu Lys	
235 240 245 250	
agt gat gac aac ttg gtg gtt gac gtt tcc aat gag gat cca tct tcc	878
Ser Asp Asp Asn Leu Val Val Asp Val Ser Asn Glu Asp Pro Ser Ser	
251 256 261 266	
cct cga ggg agc cca gca cat tcc ccc aga gag aat ggc cta gac aag	926
Pro Arg Gly Ser Pro Ala His Ser Pro Arg Glu Asn Gly Leu Asp Lys	
267 272 277 282	
aca cgc ctg ctc aag aaa gat gcc ccg att agt cca gcc tct att gca	974
Thr Arg Leu Leu Lys Lys Asp Ala Pro Ile Ser Pro Ala Ser Ile Ala	
283 288 293 298	
tct tcc agc agt act ccc tcc tcc aaa tcc aaa gaa ctt agc ctt aat	1022
Ser Ser Ser Ser Thr Pro Ser Ser Lys Ser Lys Glu Leu Ser Leu Asn	
299 304 309 314	
gaa aaa tct act act ccc gtc tca aag tcc aat acc cct act cca cga	1070
Glu Lys Ser Thr Thr Pro Val Ser Lys Ser Asn Thr Pro Thr Pro Arg	
315 320 325 330	
act gat gcg ccc acc cca ggc agt aac tct act ccc gga ttg agg cct	1118
Thr Asp Ala Pro Thr Pro Gly Ser Asn Ser Thr Pro Gly Leu Arg Pro	
331 336 341 346	
gta cct gga aaa cca cca gga gtt gac cct ttg gcc tca agc cta agg	1166
Val Pro Gly Lys Pro Pro Gly Val Asp Pro Leu Ala Ser Ser Leu Arg	
347 352 357 362	
acc cca atg gca gta cct tgt cca tat cca act cca ttt ggg att gtg	1214

Thr Pro Met Ala Val	Pro Cys Pro Tyr Pro	Thr Pro Phe Gly Ile Val	
363	368	373	378
ccc cat gct gga atg	aac gga gag ctg acc	agc ccc gga gcg gcc tac	1262
Pro His Ala Gly Met	Asn Gly Glu Leu Thr	Ser Pro Gly Ala Ala Tyr	
379	384	389	394
gct ggg ctc cac aac	atc tcc cct cag atg	agc gca gct gct gcc gcc	1310
Ala Gly Leu His Asn	Ile Ser Pro Gln Met	Ser Ala Ala Ala Ala Ala	
395	400	405	410
gcc gct gct gct gct	gcc tat ggg aga tca	cca gtg gtg gga ttt gat	1358
Ala Ala Ala Ala Ala	Ala Tyr Gly Arg Ser	Pro Val Val Gly Phe Asp	
411	416	421	426
cca cac cat cac atg	cgt gtg cca gca ata	cct cca aac ctg aca ggc	1406
Pro His His His Met	Arg Val Pro Ala Ile	Pro Pro Asn Leu Thr Gly	
427	432	437	442
att cca gga gga aaa	cca gca tac tcc ttc	cat gtt agc gca gat ggt	1454
Ile Pro Gly Gly Lys	Pro Ala Tyr Ser Phe	His Val Ser Ala Asp Gly	
443	448	453	458
cag atg cag cct gtc	cct ttt cca ccc gac	gcc ctc atc gga cct gga	1502
Gln Met Gln Pro Val	Pro Phe Pro Pro Asp	Ala Leu Ile Gly Pro Gly	
459	464	469	474
atc ccc cgg cat gct	cgc cag atc aac acc	ctc aac cac ggg gag gtg	1550
Ile Pro Arg His Ala	Arg Gln Ile Asn Thr	Leu Asn His Gly Glu Val	
475	480	485	490
gtg tgc gcg gtg acc	atc agc aac ccc acg	aga cac gtg tac acg ggt	1598
Val Cys Ala Val Thr	Ile Ser Asn Pro Thr	Arg His Val Tyr Thr Gly	
491	496	501	506
ggg aag ggc tgc gtc	aag gtc tgg gac atc	agc cac cca ggc aat aag	1646
Gly Lys Gly Cys Val	Lys Val Trp Asp Ile	Ser His Pro Gly Asn Lys	
507	512	517	522
agt cct gtc tcc cag	ctc gac tgt ctg aac	agg gat aac tac atc cgt	1694
Ser Pro Val Ser Gln	Leu Asp Cys Leu Asn	Arg Asp Asn Tyr Ile Arg	
523	528	533	538
tcc tgc aga ttg ctc	cct gat ggt cgc acc	cta att gtt gga ggg gaa	1742
Ser Cys Arg Leu Leu	Pro Asp Gly Arg Thr	Leu Ile Val Gly Gly Glu	
539	544	549	554
gcc agt act ttg tcc	att tgg gac ctg gcg	gct cca acc cca cgc atc	1790
Ala Ser Thr Leu Ser	Ile Trp Asp Leu Ala	Ala Pro Thr Pro Arg Ile	
555	560	565	570
aag gca gag ctg aca	tcc tcg gcc ccc gcc	tgc tat gcc ctg gcc atc	1838
Lys Ala Glu Leu Thr	Ser Ser Ala Pro Ala	Cys Tyr Ala Leu Ala Ile	
571	576	581	586
agc ccc gat tcc aag	gtc tgc ttc tca tgc	tgc agc gac ggc aac atc	1886
Ser Pro Asp Ser Lys	Val Cys Phe Ser Cys	Cys Ser Asp Gly Asn Ile	

587	592	597	602	
gct gtg tgg gat ctg cac aac cag acc ttg gtg agg caa ttc cag ggc				1934
Ala Val Trp Asp Leu His Asn Gln Thr Leu Val Arg Gln Phe Gln Gly				
603	608	613	618	
cac aca gat gga gcc agc tgt att gac att tct aat gat ggc acc aag				1982
His Thr Asp Gly Ala Ser Cys Ile Asp Ile Ser Asn Asp Gly Thr Lys				
619	624	629	634	
ctc tgg aca ggt ggt ttg gac aac acg gtc agg tcc tgg gac ctg cgc				2030
Leu Trp Thr Gly Gly Leu Asp Asn Thr Val Arg Ser Trp Asp Leu Arg				
635	640	645	650	
gag ggg cgg cag ctg cag cag cac gac ttc acc tcc cag atc ttt tct				2078
Glu Gly Arg Gln Leu Gln Gln His Asp Phe Thr Ser Gln Ile Phe Ser				
651	656	661	666	
ctg ggc tac tgc cca act gga gag tgg ctt gca gtg ggg atg gag aac				2126
Leu Gly Tyr Cys Pro Thr Gly Glu Trp Leu Ala Val Gly Met Glu Asn				
667	672	677	682	
agc aat gtg gaa gtt ttg cat gtc acc aag cca gac aaa tac caa cta				2174
Ser Asn Val Glu Val Leu His Val Thr Lys Pro Asp Lys Tyr Gln Leu				
683	688	693	698	
cat ctt cat gag agc tgt gtg ctg tcg ctc aag ttt gcc cat tgt ggc				2222
His Leu His Glu Ser Cys Val Leu Ser Leu Lys Phe Ala His Cys Gly				
699	704	709	714	
aaa tgg ttt gta agc act gga aag gac aac ctt ctg aat gcc tgg aga				2270
Lys Trp Phe Val Ser Thr Gly Lys Asp Asn Leu Leu Asn Ala Trp Arg				
715	720	725	730	
aca cct tat ggg gcc agt ata ttc cag tcc aaa gaa tcc tca tcg gtg				2318
Thr Pro Tyr Gly Ala Ser Ile Phe Gln Ser Lys Glu Ser Ser Ser Val				
731	736	741	746	
ctt agc tgt gac atc tcc gtg gac gac aaa tac att gtc act ggc tct				2366
Leu Ser Cys Asp Ile Ser Val Asp Asp Lys Tyr Ile Val Thr Gly Ser				
747	752	757	762	
ggg gat aag aag gcc aca gtt tat gaa gtt att tat taa agacaaatct				2415
Gly Asp Lys Lys Ala Thr Val Tyr Glu Val Ile Tyr *				
763	768	773		
tcatgcagac tggactttctc ctccctggtag cactttgctc tgtcatcctt tttgttcacc				2475
cccatccccg catctaaaac caaggatttc agatactcat tgcagttgtg gagtttaatc				2535
ccctttctta acctcacttc ccacttgcta ttgaattgtg aatagtcatt aaaaacctgt				2595
gataccaaat cttcagctgt ctacttgga gaacatggaa taagcatact taacagtga				2655
aagaatcttt aattatgtat tatatctgta atatatttat tttgtttaaa gaaggctttc				2715
taacaatgac tgactaaata aagctgtctg ctccctggcat tggataatgg aggggtgcggt				2775

tgtatttggga taccctncc cccctttttt tgggcaaggg ngggggnagg gaggggtttt 2835
 aaaatnattg gnttt 2850

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 Met Ile Arg Asp Leu Ser Lys Met Tyr Pro
 1 5
 cag acc aga cac ccg gca ccg cat cag cct gct caa ccc ttt aaa ttt 158
 Gln Thr Arg His Pro Ala Pro His Gln Pro Ala Gln Pro Phe Lys Phe
 11 16 21 26
 aca att tcc gaa tcc tgt gat cgg att aag gaa gag ttt cag ttt tta 206
 Thr Ile Ser Glu Ser Cys Asp Arg Ile Lys Glu Glu Phe Gln Phe Leu
 27 32 37 42
 cag gct caa tac cac agt ctg aag ctg gaa tgt gag aaa ctc gcc agt 254
 Gln Ala Gln Tyr His Ser Leu Lys Leu Glu Cys Glu Lys Leu Ala Ser
 43 48 53 58
 gag aag aca gag atg cag cgg cat tat gtc atg tat tat gaa atg tcc 302
 Glu Lys Thr Glu Met Gln Arg His Tyr Val Met Tyr Tyr Glu Met Ser
 59 64 69 74
 tat ggg ttg aat ata gaa atg cac aag cag cac cag caa caa gtg gtg 350
 Tyr Gly Leu Asn Ile Glu Met His Lys Gln His Gln Gln Gln Val Val
 75 80 85 90
 cag gct gtg gaa cgg gcc aag cag gtg acc atg gca gaa ctg aac gcc 398
 Gln Ala Val Glu Arg Ala Lys Gln Val Thr Met Ala Glu Leu Asn Ala
 91 96 101 106
 atc att ggg cag caa caa ctc cag gcc cag cat tta tca cat gga cat 446
 Ile Ile Gly Gln Gln Gln Leu Gln Ala Gln His Leu Ser His Gly His
 107 112 117 122

ggt ctc ccc gta cct ctg act cca cac cct tca ggg ctc cag ccc cct	494
Gly Leu Pro Val Pro Leu Thr Pro His Pro Ser Gly Leu Gln Pro Pro	
123 128 133 138	
gcc att cca ccc atc ggt agc agt gcc ggg ctt ctg gcc ctc tcc agt	542
Ala Ile Pro Pro Ile Gly Ser Ser Ala Gly Leu Leu Ala Leu Ser Ser	
139 144 149 154	
gct cta gga ggt cag tcc cat ctt cca att aaa gat gag aag aag cac	590
Ala Leu Gly Gly Gln Ser His Leu Pro Ile Lys Asp Glu Lys Lys His	
155 160 165 170	
cat gac aat gat cac caa aga gac aga gac tcc atc aag agc tct tca	638
His Asp Asn Asp His Gln Arg Asp Arg Asp Ser Ile Lys Ser Ser Ser	
171 176 181 186	
gta tcc cca tca gcc agt ttc cga ggt gct gag aag cac aga aac tcc	686
Val Ser Pro Ser Ala Ser Phe Arg Gly Ala Glu Lys His Arg Asn Ser	
187 192 197 202	
gca gac tac tcc tca gag agc aaa aag cag aaa act gaa gaa aag gaa	734
Ala Asp Tyr Ser Ser Glu Ser Lys Lys Gln Lys Thr Glu Glu Lys Glu	
203 208 213 218	
att gca gct cgt tat gac agc gat ggt gag aaa agt gat gac aac ttg	782
Ile Ala Ala Arg Tyr Asp Ser Asp Gly Glu Lys Ser Asp Asp Asn Leu	
219 224 229 234	
gtg gtt gac gtt tcc aat gag gat cca tct tcc cct cga ggg agc cca	830
Val Val Asp Val Ser Asn Glu Asp Pro Ser Ser Pro Arg Gly Ser Pro	
235 240 245 250	
gca cat tcc ccc aga gag aat ggc cta gac aag aca cgc ctg ctc aag	878
Ala His Ser Pro Arg Glu Asn Gly Leu Asp Lys Thr Arg Leu Leu Lys	
251 256 261 266	
aaa gat gcc ccg att agt cca gcc tct att gca tct tcc agc agt act	926
Lys Asp Ala Pro Ile Ser Pro Ala Ser Ile Ala Ser Ser Ser Ser Thr	
267 272 277 282	
ccc tcc tcc aaa tcc aaa gaa ctt agc ctt aat gaa aaa tct act act	974
Pro Ser Ser Lys Ser Lys Glu Leu Ser Leu Asn Glu Lys Ser Thr Thr	
283 288 293 298	
ccc gtc tca aag tcc aat acc cct act cca cga act gat gcg ccc acc	1022
Pro Val Ser Lys Ser Asn Thr Pro Thr Pro Arg Thr Asp Ala Pro Thr	
299 304 309 314	
cca ggc agt aac tct act ccc gga ttg agg cct gta cct gga aaa cca	1070
Pro Gly Ser Asn Ser Thr Pro Gly Leu Arg Pro Val Pro Gly Lys Pro	
315 320 325 330	
cca gga gtt gac cct ttg gcc tca agc cta agg acc cca atg gca gta	1118
Pro Gly Val Asp Pro Leu Ala Ser Ser Leu Arg Thr Pro Met Ala Val	
331 336 341 346	
cct tgt cca tat cca act cca ttt ggg att gtg ccc cat gct gga atg	1166

Pro Cys Pro Tyr Pro Thr Pro Phe Gly Ile Val Pro His Ala Gly Met	
347 352 357 362	
aac gga gag ctg acc agc ccc gga gcg gcc tac gct ggg ctc cac aac	1214
Asn Gly Glu Leu Thr Ser Pro Gly Ala Ala Tyr Ala Gly Leu His Asn	
363 368 373 378	
atc tcc cct cag atg agc gca gct gct gcc gcc gcc gct gct gct gct	1262
Ile Ser Pro Gln Met Ser Ala Ala Ala Ala Ala Ala Ala Ala Ala	
379 384 389 394	
gcc tat ggg aga tca cca gtg gtg gga ttt gat cca cac cat cac atg	1310
Ala Tyr Gly Arg Ser Pro Val Val Gly Phe Asp Pro His His His Met	
395 400 405 410	
cgt gtg cca gca ata cct cca aac ctg aca ggc att cca gga gga aaa	1358
Arg Val Pro Ala Ile Pro Pro Asn Leu Thr Gly Ile Pro Gly Gly Lys	
411 416 421 426	
cca gca tac tcc ttc cat gtt agc gca gat ggt cag atg cag cct gtc	1406
Pro Ala Tyr Ser Phe His Val Ser Ala Asp Gly Gln Met Gln Pro Val	
427 432 437 442	
cct ttt cca ccc gac gcc ctc atc gga cct gga atc ccc cgg cat gct	1454
Pro Phe Pro Pro Asp Ala Leu Ile Gly Pro Gly Ile Pro Arg His Ala	
443 448 453 458	
cgc cag atc aac acc ctc aac cac ggg gag gtg gtg tgc gcg gtg acc	1502
Arg Gln Ile Asn Thr Leu Asn His Gly Glu Val Val Cys Ala Val Thr	
459 464 469 474	
atc agc aac ccc acg aga cac gtg tac acg ggt ggg aag ggc tgc gtc	1550
Ile Ser Asn Pro Thr Arg His Val Tyr Thr Gly Gly Lys Gly Cys Val	
475 480 485 490	
aag gtc tgg gac atc agc cac cca ggc aat aag agt cct gtc tcc cag	1598
Lys Val Trp Asp Ile Ser His Pro Gly Asn Lys Ser Pro Val Ser Gln	
491 496 501 506	
ctc gac tgt ctg aac agg gat aac tac atc cgt tcc tgc aga ttg ctc	1646
Leu Asp Cys Leu Asn Arg Asp Asn Tyr Ile Arg Ser Cys Arg Leu Leu	
507 512 517 522	
cct gat ggt cgc acc cta att gtt gga ggg gaa gcc agt act ttg tcc	1694
Pro Asp Gly Arg Thr Leu Ile Val Gly Gly Glu Ala Ser Thr Leu Ser	
523 528 533 538	
att tgg gac ctg gcg gct cca acc cca cgc atc aag gca gag ctg aca	1742
Ile Trp Asp Leu Ala Ala Pro Thr Pro Arg Ile Lys Ala Glu Leu Thr	
539 544 549 554	
tcc tcg gcc ccc gcc tgc tat gcc ctg gcc atc agc ccc gat tcc aag	1790
Ser Ser Ala Pro Ala Cys Tyr Ala Leu Ala Ile Ser Pro Asp Ser Lys	
555 560 565 570	
gtc tgc ttc tca tgc tgc agc gac ggc aac atc gct gtg tgg gat ctg	1838
Val Cys Phe Ser Cys Cys Ser Asp Gly Asn Ile Ala Val Trp Asp Leu	

571	576	581	586	
cac aac cag acc ttg gtg agg caa ttc cag ggc cac aca gat gga gcc				1886
His Asn Gln Thr Leu Val Arg Gln Phe Gln Gly His Thr Asp Gly Ala				
587	592	597	602	
agc tgt att gac att tct aat gat ggc acc aag ctc tgg aca ggt ggt				1934
Ser Cys Ile Asp Ile Ser Asn Asp Gly Thr Lys Leu Trp Thr Gly Gly				
603	608	613	618	
ttg gac aac acg gtc agg tcc tgg gac ctg cgc gag ggg cgg cag ctg				1982
Leu Asp Asn Thr Val Arg Ser Trp Asp Leu Arg Glu Gly Arg Gln Leu				
619	624	629	634	
cag cag cac gac ttc acc tcc cag atc ttt tct ctg ggc tac tgc cca				2030
Gln Gln His Asp Phe Thr Ser Gln Ile Phe Ser Leu Gly Tyr Cys Pro				
635	640	645	650	
act gga gag tgg ctt gca gtg ggg atg gag aac agc aat gtg gaa gtt				2078
Thr Gly Glu Trp Leu Ala Val Gly Met Glu Asn Ser Asn Val Glu Val				
651	656	661	666	
ttg cat gtc acc aag cca gac aaa tac caa cta cat ctt cat gag agc				2126
Leu His Val Thr Lys Pro Asp Lys Tyr Gln Leu His Leu His Glu Ser				
667	672	677	682	
tgt gtg ctg tcg ctc aag ttt gcc cat tgt ggc aaa tgg ttt gta agc				2174
Cys Val Leu Ser Leu Lys Phe Ala His Cys Gly Lys Trp Phe Val Ser				
683	688	693	698	
act gga aag gac aac ctt ctg aat gcc tgg aga aca cct tat ggg gcc				2222
Thr Gly Lys Asp Asn Leu Leu Asn Ala Trp Arg Thr Pro Tyr Gly Ala				
699	704	709	714	
agt ata ttc cag tcc aaa gaa tcc tca tcg gtg ctt agc tgt gac atc				2270
Ser Ile Phe Gln Ser Lys Glu Ser Ser Ser Val Leu Ser Cys Asp Ile				
715	720	725	730	
tcc gtg gac gac aaa tac att gtc act ggc tct ggg gat aag aag gcc				2318
Ser Val Asp Asp Lys Tyr Ile Val Thr Gly Ser Gly Asp Lys Lys Ala				
731	736	741	746	
aca gtt tat gaa gtt att tat taa agacaaatct tcatgcagac tggacttctc				2372
Thr Val Tyr Glu Val Ile Tyr *				
747	752			
ctcctggtag cactttgctc tgtcatcctt tttgttcacc cccatccccg catctaaaac				2432
caaggatttc agatactcat tgcagttgtg gagtttaatc cccctttctta acctcacttc				2492
ccacttgcta ttgaattgtg aatagtcatt aaaaacctgt gataccaaat cttcagctgt				2552
ctacttgga gaacatggaa taagcatact taacagtga aagaatcttt aattatgtat				2612
tatatctgta atatatttat tttgtttaaa gaaggctttc taacaatgac tgactaaata				2672
aagctgtctg ctcctggcat tggataatgg aggggtgcggt tgtattttgga taccctncc				2732

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2787

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<211> 2780
<212> DNA
<213> Homo sapiens

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<222> (219) .. (2045)

<220>
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<222> (1) ... (2780)
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<400> 358

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ggcggagccc atgccccggg acggcggcg gacccggaga gacaaatccg gggccccggg 180

catgtccccg gggcccccggt gaggaggcgg cggcggct atg gag atc gcg ccg 233
Met Glu Ile Ala Pro
1

cag gag gcg ccg ccc gtg ccg ggc gcg gac ggc gac att gaa gag gcc 281
Gln Glu Ala Pro Pro Val Pro Gly Ala Asp Gly Asp Ile Glu Glu Ala
6 11 16 21

cca gct gag gcc ggg tct ccc agc ccc gcg tcg ccc ccc gcc gat ggg 329
Pro Ala Glu Ala Gly Ser Pro Ser Pro Ala Ser Pro Pro Ala Asp Gly
22 27 32 37

cgc ctc aag gct gca gcc aag cgc gtc aca ttc ccg tcc gac gag gat 377
Arg Leu Lys Ala Ala Ala Lys Arg Val Thr Phe Pro Ser Asp Glu Asp
38 43 48 53

atc gtg tct gga gca gtg gag ccc aaa gac ccc tgg aga cat gcc cag 425
Ile Val Ser Gly Ala Val Glu Pro Lys Asp Pro Trp Arg His Ala Gln
54 59 64 69

aat gtg acc gtg gac gag gtc atc ggc gcc tac aag cag gcc tgc cag 473
Asn Val Thr Val Asp Glu Val Ile Gly Ala Tyr Lys Gln Ala Cys Gln
70 75 80 85

aag ctg aac tgc agg cag atc ccc aag ctc ctc agg cag ctg cag gaa 521
Lys Leu Asn Cys Arg Gln Ile Pro Lys Leu Leu Arg Gln Leu Gln Glu
86 91 96 101

ttc aca gac ctc ggg cac cgc ctc gac tgt ctg gac ctg aaa ggt gag 569
Phe Thr Asp Leu Gly His Arg Leu Asp Cys Leu Asp Leu Lys Gly Glu

102	107	112	117	
aag ctt gac tac aag	acc tgt gag gcc ctg	gaa gag gtc ttc aag	agg	617
Lys Leu Asp Tyr Lys	Thr Cys Glu Ala Leu	Glu Glu Val Phe Lys	Arg	
118	123	128	133	
ctg cag ttc aag gtc	gtg gac ctg gag cag	aca aac ctg gat gaa	gat	665
Leu Gln Phe Lys Val	Val Asp Leu Glu Gln	Thr Asn Leu Asp Glu	Asp	
134	139	144	149	
ggt gcc tcg gcc ctc	ttc gac atg atc gag	tac tac gag tcg gcc	acc	713
Gly Ala Ser Ala Leu	Phe Asp Met Ile Glu	Tyr Tyr Glu Ser Ala	Thr	
150	155	160	165	
cac ctc aac atc tcc	ttc aac aag cac atc	ggc acc cgg ggc tgg	cag	761
His Leu Asn Ile Ser	Phe Asn Lys His Ile	Gly Thr Arg Gly Trp	Gln	
166	171	176	181	
gcg gcc gcc cac atg	atg cgc aag acg agc	tgc ctg cag tat ctg	gac	809
Ala Ala Ala His Met	Met Arg Lys Thr Ser	Cys Leu Gln Tyr Leu	Asp	
182	187	192	197	
gcc cgc aac acg ccc	ctg ctg gac cac tcg	ggc ccc ttc gtg gcc	cgt	857
Ala Arg Asn Thr Pro	Leu Leu Asp His Ser	Ala Pro Phe Val Ala	Arg	
198	203	208	213	
gcc ctg cgc atc cgc	agc agc ctg gca gtg	ctg cac ttg gag aac	gcc	905
Ala Leu Arg Ile Arg	Ser Ser Leu Ala Val	Leu His Leu Glu Asn	Ala	
214	219	224	229	
agc ctg tcg ggg cgg	ccc ctc atg ctg ctc	gcc acg gcc ctg aag	atg	953
Ser Leu Ser Gly Arg	Pro Leu Met Leu Leu	Ala Thr Ala Leu Lys	Met	
230	235	240	245	
aac atg aac ctg cgg	gag ctg tac ctg gcg	gac aac aag ctc aac	ggc	1001
Asn Met Asn Leu Arg	Glu Leu Tyr Leu Ala	Asp Asn Lys Leu Asn	Gly	
246	251	256	261	
ctg cag gac tcg gcc	cag ctg ggt aac ctg	ctc aag ttc aac tgc	tcc	1049
Leu Gln Asp Ser Ala	Gln Leu Gly Asn Leu	Leu Lys Phe Asn Cys	Ser	
262	267	272	277	
ctg cag atc ctg gac	ctc cgg aac aac cac	gtg cta gac tcg ggt	ctg	1097
Leu Gln Ile Leu Asp	Leu Arg Asn Asn His	Val Leu Asp Ser Gly	Leu	
278	283	288	293	
gcc tac atc tgc gag	ggc ctc aag gag cag	agg aag ggg ctg gtg	acc	1145
Ala Tyr Ile Cys Glu	Gly Leu Lys Glu Gln	Arg Lys Gly Leu Val	Thr	
294	299	304	309	
ctg gtg ctg tgg aac	aac cag ctc acg cac	aca ggc atg gcc ttc	ctg	1193
Leu Val Leu Trp Asn	Asn Gln Leu Thr His	Thr Gly Met Ala Phe	Leu	
310	315	320	325	
ggc atg aca ctg agc	ctg gag acg ctg aac	ctg ggc cac aac ccc	atc	1241
Gly Met Thr Leu Ser	Leu Glu Thr Leu Asn	Leu Gly His Asn Pro	Ile	
326	331	336	341	

ggg aac gag ggt gtg cgg cac ctc aag aac ggg ctc atc agc aac cgc Gly Asn Glu Gly Val Arg His Leu Lys Asn Gly Leu Ile Ser Asn Arg 342 347 352 357	1289
agc gtg ctg cgc ctc ggg ctg gcc tcc acc aag ctc acg tgc gag ggc Ser Val Leu Arg Leu Gly Leu Ala Ser Thr Lys Leu Thr Cys Glu Gly 358 363 368 373	1337
gcg gtg gcg gtg gcg gag ttc atc gct gag agc ccc cgc ctc ctg aga Ala Val Ala Val Ala Glu Phe Ile Ala Glu Ser Pro Arg Leu Leu Arg 374 379 384 389	1385
ctg gac ctt cgg gag aac gag atc aag aca ggc ggg ctc atg gca ctg Leu Asp Leu Arg Glu Asn Glu Ile Lys Thr Gly Gly Leu Met Ala Leu 390 395 400 405	1433
tcg ttg gcc ctc aag gtg aac cac tca ctg ctg cgc ctg gac ctc gac Ser Leu Ala Leu Lys Val Asn His Ser Leu Leu Arg Leu Asp Leu Asp 406 411 416 421	1481
cgt gaa ccc aag aaa gag gcg gtg aag agc ttc atc gag acg cag aag Arg Glu Pro Lys Lys Glu Ala Val Lys Ser Phe Ile Glu Thr Gln Lys 422 427 432 437	1529
gcg ctg ctg gcc gag atc cag aac ggc tgc aag cgc aac ttg gtg ctg Ala Leu Leu Ala Glu Ile Gln Asn Gly Cys Lys Arg Asn Leu Val Leu 438 443 448 453	1577
gcg cgg gag agg gag gag aag gag cag ccg cca cag ctg tcg gcc tcc Ala Arg Glu Arg Glu Glu Lys Glu Gln Pro Pro Gln Leu Ser Ala Ser 454 459 464 469	1625
atg cct gag acc acc gcc acc gag ccc cag ccc gac gac gag ccc gcc Met Pro Glu Thr Thr Ala Thr Glu Pro Gln Pro Asp Asp Glu Pro Ala 470 475 480 485	1673
gct ggg gtg cag aac ggg gcc ccc agc ccc gca ccc agc ccg gac tca Ala Gly Val Gln Asn Gly Ala Pro Ser Pro Ala Pro Ser Pro Asp Ser 486 491 496 501	1721
gac tca gac tcg gac tcg gat ggg gag gaa gag gag gaa gag gaa ggg Asp Ser Asp Ser Asp Ser Asp Gly Glu Glu Glu Glu Glu Glu Gly 502 507 512 517	1769
gag agg gac gag acc ccc tcc ggg gcc att gac acc cgg gac aca ggg Glu Arg Asp Glu Thr Pro Ser Gly Ala Ile Asp Thr Arg Asp Thr Gly 518 523 528 533	1817
tcc tct gag cct cag cca cca ccg gag ccg cct cgg tca ggg cca cca Ser Ser Glu Pro Gln Pro Pro Pro Glu Pro Pro Arg Ser Gly Pro Pro 534 539 544 549	1865
ctg ccc aac ggc ctg aag ccc gag ttc gcc ctg gca ctg ccc cct gag Leu Pro Asn Gly Leu Lys Pro Glu Phe Ala Leu Ala Leu Pro Pro Glu 550 555 560 565	1913

ccg ccc ccg ggg cct gag gtc aag ggg ggc agc tgc ggc ctg gag cac	1961
Pro Pro Pro Gly Pro Glu Val Lys Gly Gly Ser Cys Gly Leu Glu His	
566 571 576 581	
gaa ctg agc tgc tcc aag aac gag aag gag ctc gag gag ctg ctt ctg	2009
Glu Leu Ser Cys Ser Lys Asn Glu Lys Glu Leu Glu Glu Leu Leu Leu	
582 587 592 597	
gaa gcc agt cag gaa tcc ggg cag gag aca ctg tga cact ttagttccct	2059
Glu Ala Ser Gln Glu Ser Gly Gln Glu Thr Leu *	
598 603 608	
ttttccggtc ggtctgcat gagctgaggc cagagccatg agaactctgct caccttcccc	2119
ccagccttcc tgaggcccag gatgccaggg gtggggggcca ttctgggggc cccctcccc	2179
cacagcaaca ctacaagggg tgcaggagct acagggagtg gccctccgcg cgtgactcaa	2239
gcacttctat ttatgagccc agcactggaa gactctgggg gtgaatggga ggagggggag	2299
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agaacagccc cagacagcgc aggccgggca ggggtgggggg atgggagcag aggatcagag	2539
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ccgggaccct gctgtccagg cactggagg ctgcgccctg agaggcacta cagcccttgc	2659
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a	2780

<210> 359
 <211> 533
 <212> DNA
 <213> Homo sapiens

<220>
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tacctatctc ggcataattc ttcataaaaa cacaggtgct ctccctgccg atcctgtcca	180

actgatctct	caaaccccaa	ccccttctac	aaaacaacaa	ctcctttcct	tcctgggc	238
atg gtt gga tac ttt tac ctt tgg ata cct ggt ttt gcc atc cta aca	286					
Met Val Gly Tyr Phe Tyr Leu Trp Ile Pro Gly Phe Ala Ile Leu Thr						
1 5 10 15						

aaa cca tta tgt aaa ctc aca aaa gaa aac cta gct gat gcc ata gat	334
Lys Pro Leu Cys Lys Leu Thr Lys Glu Asn Leu Ala Asp Ala Ile Asp	
17 22 27 32	

cct aaa tcc ttt tcc cac tcc tct ttc cgt tcc ttg aag aca gca tta	382
Pro Lys Ser Phe Ser His Ser Ser Phe Arg Ser Leu Lys Thr Ala Leu	
33 38 43 48	

gag aat gct tcc aca cta gct ctc cct gac tca tcc ³ caa ccc ttt ttc	430
Glu Asn Ala Ser Thr Leu Ala Leu Pro Asp Ser Ser Gln Pro Phe Phe	
49 54 59 64	

att aca cac agc cga agt gca ggg ctg tgt ggt cga aat tct tac aca	478
Ile Thr His Ser Arg Ser Ala Gly Leu Cys Gly Arg Asn Ser Tyr Thr	
65 70 75 80	

agg act ggg acc gct ccc tgt ggc ctt ttt atc caa aca act tga gct	526
Arg Thr Gly Thr Ala Pro Cys Gly Leu Phe Ile Gln Thr Thr *	
81 86 91	

tactgtt	533
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 <212> DNA
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<220>
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 <222> (105) .. (1409)

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agctcccgga tgtggagaag ctggggagaa ggctgtggag gaag atg gac tcg gtg	116
Met Asp Ser Val	
1	

gag aag ggg gcc gcc acc tcc gtc tcc aac ccg cgg ggg cga ccg tcc	164
Glu Lys Gly Ala Ala Thr Ser Val Ser Asn Pro Arg Gly Arg Pro Ser	
5 10 15 20	

cgg ggc cgg ccg ccg aag ctg cag cgc aac tct cgc ggc ggc cag ggc	212
Arg Gly Arg Pro Pro Lys Leu Gln Arg Asn Ser Arg Gly Gly Gln Gly	
21 26 31 36	

cga ggt gtg gag aag ccc ccg cac ctg gca gcc cta att ctg gcc cgg	260
Arg Gly Val Glu Lys Pro Pro His Leu Ala Ala Leu Ile Leu Ala Arg	
37 42 47 52	

gga ggc agc aaa ggc atc ccc ctg aag aac att aag cac ctg gcg ggg	308
Gly Gly Ser Lys Gly Ile Pro Leu Lys Asn Ile Lys His Leu Ala Gly	
53 58 63 68	
gtc ccg ctc att ggc tgg gtc ctg cgt gcg gcc ctg gat tca ggg gcc	356
Val Pro Leu Ile Gly Trp Val Leu Arg Ala Ala Leu Asp Ser Gly Ala	
69 74 79 84	
ttc cag agt gta tgg gtt tgc aca gac cat gat gaa att gag aat gtg	404
Phe Gln Ser Val Trp Val Ser Thr Asp His Asp Glu Ile Glu Asn Val	
85 90 95 100	
gcc aaa caa ttt ggt gca caa gtt cat cga aga agt tct gaa gtt tca	452
Ala Lys Gln Phe Gly Ala Gln Val His Arg Arg Ser Ser Glu Val Ser	
101 106 111 116	
aaa gac agc tct acc tca cta gat gcc atc ata gaa ttt ctt aat tat	500
Lys Asp Ser Ser Thr Ser Leu Asp Ala Ile Ile Glu Phe Leu Asn Tyr	
117 122 127 132	
cat aat gag gtt gac att gta gga aat att caa gct act tct cca tgt	548
His Asn Glu Val Asp Ile Val Gly Asn Ile Gln Ala Thr Ser Pro Cys	
133 138 143 148	
tta cat cct act gat ctt caa aaa gtt gca gaa atg att cga gaa gaa	596
Leu His Pro Thr Asp Leu Gln Lys Val Ala Glu Met Ile Arg Glu Glu	
149 154 159 164	
gga tat gat tct gtt ttc tct gtt gtg aga cgc cat cag ttt cga tgg	644
Gly Tyr Asp Ser Val Phe Ser Val Val Arg Arg His Gln Phe Arg Trp	
165 170 175 180	
agt gaa att cag aaa gga gtt cgt gaa gtg acc gaa cct ctg aat tta	692
Ser Glu Ile Gln Lys Gly Val Arg Glu Val Thr Glu Pro Leu Asn Leu	
181 186 191 196	
aat cca gct aaa cgg cct cgt cga caa gac tgg gat gga gaa tta tat	740
Asn Pro Ala Lys Arg Pro Arg Arg Gln Asp Trp Asp Gly Glu Leu Tyr	
197 202 207 212	
gaa aat ggc tca ttt tat ttt gct aaa aga cat ttg ata gag atg ggt	788
Glu Asn Gly Ser Phe Tyr Phe Ala Lys Arg His Leu Ile Glu Met Gly	
213 218 223 228	
tac ttg cag ggt gga aaa atg gca tac tac gaa atg cga gct gaa cat	836
Tyr Leu Gln Gly Gly Lys Met Ala Tyr Tyr Glu Met Arg Ala Glu His	
229 234 239 244	
agt gtg gat ata gat gtg gat att gat tgg cct att gca gag caa aga	884
Ser Val Asp Ile Asp Val Asp Ile Asp Trp Pro Ile Ala Glu Gln Arg	
245 250 255 260	
gta tta aga tat ggc tat ttt ggc aaa gag aag ctt aag gaa ata aaa	932
Val Leu Arg Tyr Gly Tyr Phe Gly Lys Glu Lys Leu Lys Glu Ile Lys	
261 266 271 276	

ctt ttg gtt tgc aat att gat gga tgt ctc acc aat ggc cac att tat	980
Leu Leu Val Cys Asn Ile Asp Gly Cys Leu Thr Asn Gly His Ile Tyr	
277 282 287 292	
gta tca gga gac caa aaa gaa ata ata tct tat gat gta aaa gat gct	1028
Val Ser Gly Asp Gln Lys Glu Ile Ile Ser Tyr Asp Val Lys Asp Ala	
293 298 303 308	
att ggg ata agt tta tta aag aaa agt ggt att gag gtg agg cta atc	1076
Ile Gly Ile Ser Leu Leu Lys Lys Ser Gly Ile Glu Val Arg Leu Ile	
309 314 319 324	
tca gaa agg gcc tgt tca aag cag acg ctg tct tct tta aaa ctg gat	1124
Ser Glu Arg Ala Cys Ser Lys Gln Thr Leu Ser Ser Leu Lys Leu Asp	
325 330 335 340	
tgc aaa atg gaa gtc agt gta tca gac aag cta gca gtt gta gat gaa	1172
Cys Lys Met Glu Val Ser Val Ser Asp Lys Leu Ala Val Val Asp Glu	
341 346 351 356	
tgg aga aaa gaa atg ggc ctg tgc tgg aaa gaa gtg gca tat ctt gga	1220
Trp Arg Lys Glu Met Gly Leu Cys Trp Lys Glu Val Ala Tyr Leu Gly	
357 362 367 372	
aat gaa gtg tct gat gaa gag tgc ttg aag aga gtg ggc cta agt ggc	1268
Asn Glu Val Ser Asp Glu Glu Cys Leu Lys Arg Val Gly Leu Ser Gly	
373 378 383 388	
gct cct gct gat gcc tgt tct act gcc cag aag gct gtt gga tac att	1316
Ala Pro Ala Asp Ala Cys Ser Thr Ala Gln Lys Ala Val Gly Tyr Ile	
389 394 399 404	
tgc aaa tgt aat ggt ggc cgt ggt gcc atc cga gaa ttt gca gag cac	1364
Cys Lys Cys Asn Gly Gly Arg Gly Ala Ile Arg Glu Phe Ala Glu His	
405 410 415 420	
att tgc cta cta atg gaa aag gtt aat aat tca tgc caa aaa tag aaa	1412
Ile Cys Leu Leu Met Glu Lys Val Asn Asn Ser Cys Gln Lys *	
421 426 431	
ttagcgtaat attgagaaaa aaatgataca gccttcttca gccagtttgc ttttattttt	1472
gattaagtaa attccatggt gtaatgttac agagagtgtg atttggtttg tgatatatat	1532
atattgtgct ctacttttct ctttacgcaa gataattatt tagagactga ttacagtctt	1592
tctcagattt ttagtaaattg caagtaagaa catcatcaaa gttcactttg tattgtaccc	1652
tgtaaaactg tgtgtttgtg tgctttcaaa gatgttggga ttttatttat ctggggacag	1712
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<210> 361
<211> 1417

<212> DNA
 <213> Homo sapiens

<220>
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 <222> (18)..(1208)

<400> 361

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	1 5	
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Leu Ser Arg Ile Arg Ile Arg Gly Arg Val Asp Ala Gly Asn Trp Arg		
12 17 22 27		
gtg gga ctc cag aca gga gag gct gcg cct tcc ccg cac cgg gac ctt		146
Val Gly Leu Gln Thr Gly Glu Ala Ala Pro Ser Pro His Arg Asp Leu		
28 33 38 43		
cgc gac aca cca gat cct cgc ccc tgg ctc gcg cga acg cac agg atg		194
Arg Asp Thr Pro Asp Pro Arg Pro Trp Leu Ala Arg Thr His Arg Met		
44 49 54 59		
acc acc acc ctc gtg tct gcc acc atc ttc gac ttg agc gaa gtt tta		242
Thr Thr Thr Leu Val Ser Ala Thr Ile Phe Asp Leu Ser Glu Val Leu		
60 65 70 75		
tgc aag ggt aac aag atg ctc aac tat agt gct ccc agt gca ggg ggt		290
Cys Lys Gly Asn Lys Met Leu Asn Tyr Ser Ala Pro Ser Ala Gly Gly		
76 81 86 91		
tgc ctg ctg gac aga aag gca gtg ggc acc cct gct ggt ggg ggc ttc		338
Cys Leu Leu Asp Arg Lys Ala Val Gly Thr Pro Ala Gly Gly Gly Phe		
92 97 102 107		
cct cgg agg cac tca gtc acc ctg ccc agc tcc aag ttc cac cag aac		386
Pro Arg Arg His Ser Val Thr Leu Pro Ser Ser Lys Phe His Gln Asn		
108 113 118 123		
cag ctc ctc agc agc ctc aag ggt gag cca gcc ccc gct ctg agc tcg		434
Gln Leu Leu Ser Ser Leu Lys Gly Glu Pro Ala Pro Ala Leu Ser Ser		
124 129 134 139		
cga gac agc cgc ttc cga gac cgc tcc ttc tcg gaa ggg ggc gag cgg		482
Arg Asp Ser Arg Phe Arg Asp Arg Ser Phe Ser Glu Gly Gly Glu Arg		
140 145 150 155		
ctg ctg ccc acc cag aag cag ccc ggg ggc ggc cag gtc aac tcc agc		530
Leu Leu Pro Thr Gln Lys Gln Pro Gly Gly Gly Gln Val Asn Ser Ser		
156 161 166 171		
cgc tac aag acg gag ctg tgc cgc ccc ttt gag gaa aac ggt gcc tgt		578
Arg Tyr Lys Thr Glu Leu Cys Arg Pro Phe Glu Glu Asn Gly Ala Cys		
172 177 182 187		
aag tac ggg gac aag tgc cag ttc gca cac ggc atc cac gag ctc cgc		626

Lys Tyr Gly Asp Lys Cys Gln Phe Ala His Gly Ile His Glu Leu Arg	
188 193 198 203	
agc ctg acc cgc cac ccc aag tac aag acg gag ctg tgc cgc acc ttc	674
Ser Leu Thr Arg His Pro Lys Tyr Lys Thr Glu Leu Cys Arg Thr Phe	
204 209 214 219	
cac acc atc ggc ttt tgc ccc tac ggg ccc cgc tgc cac ttc atc cac	722
His Thr Ile Gly Phe Cys Pro Tyr Gly Pro Arg Cys His Phe Ile His	
220 225 230 235	
aac gct gaa gag cgc cgt gcc ctg gcc ggg gcc cgg gac ctc tcc gct	770
Asn Ala Glu Glu Arg Arg Ala Leu Ala Gly Ala Arg Asp Leu Ser Ala	
236 241 246 251	
gac cgt ccc cgc ctc cag cat agc ttt agc ttt gct ggg ttt ccc agt	818
Asp Arg Pro Arg Leu Gln His Ser Phe Ser Phe Ala Gly Phe Pro Ser	
252 257 262 267	
gcc gct gcc acc gcc gct gcc acc ggg ctg ctg gac agc ccc acg tcc	866
Ala Ala Ala Thr Ala Ala Ala Thr Gly Leu Leu Asp Ser Pro Thr Ser	
268 273 278 283	
atc acc cca ccc cct att ctg agc gcc gat gac ctc ctg ggc tca cct	914
Ile Thr Pro Pro Pro Ile Leu Ser Ala Asp Asp Leu Leu Gly Ser Pro	
284 289 294 299	
acc ctg ccc gat ggc acc aat aac cct ttt gcc ttc tcc agc cag gag	962
Thr Leu Pro Asp Gly Thr Asn Asn Pro Phe Ala Phe Ser Ser Gln Glu	
300 305 310 315	
ctg gca agc ctc ttt gcc cct agc atg ggg ctg ccc ggg ggt ggc tcc	1010
Leu Ala Ser Leu Phe Ala Pro Ser Met Gly Leu Pro Gly Gly Gly Ser	
316 321 326 331	
ccg acc acc ttc ctc ttc cgg ccc atg tcc gag tcc cct cac atg ttt	1058
Pro Thr Thr Phe Leu Phe Arg Pro Met Ser Glu Ser Pro His Met Phe	
332 337 342 347	
gac tct ccc ccc agc cct cag gat tct ctc tgc gac cag gag ggc tac	1106
Asp Ser Pro Pro Ser Pro Gln Asp Ser Leu Ser Asp Gln Glu Gly Tyr	
348 353 358 363	
ctg agc agc tcc agc agc agc cac agt ggc tca gac tcc ccg acc ttg	1154
Leu Ser Ser Ser Ser Ser Ser His Ser Gly Ser Asp Ser Pro Thr Leu	
364 369 374 379	
gac aac tca aga cgc ctg ccc atc ttc agc aga ctt tcc atc tca gat	1202
Asp Asn Ser Arg Arg Leu Pro Ile Phe Ser Arg Leu Ser Ile Ser Asp	
380 385 390 395	
gac taa gccagggtag ggagggacct cctggctcgac gcggccgcga attcggatcc	1258
Asp *	
396	
tcgagagatc tcttttttttg ggtttggtgg ggtatcttca tcatcgaata gatagccaac	1318

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Pro Ile Gln Lys Ala Val Ile Asn His Thr Phe Gly Val Pro Leu Pro
3 8 13 18
cac cga aga aag caa atc ata tca tgc aac att tgc cag ttg aga ttt 151
His Arg Arg Lys Gln Ile Ile Ser Cys Asn Ile Cys Gln Leu Arg Phe
19 24 29 34
aat tct gat agc cag gct gcg gcc cac tac aaa ggc acg aaa cat gcc 199
Asn Ser Asp Ser Gln Ala Ala Ala His Tyr Lys Gly Thr Lys His Ala
35 40 45 50
aag aag ctc aaa gca ctg gaa gcc atg aaa aat aag cag aaa tct gta 247
Lys Lys Leu Lys Ala Leu Glu Ala Met Lys Asn Lys Gln Lys Ser Val
51 56 61 66
act gcc aag gac agc gca aag act acc ttc acc tcc atc act acc aat 295
Thr Ala Lys Asp Ser Ala Lys Thr Thr Phe Thr Ser Ile Thr Thr Asn
67 72 77 82
acc atc aat acc agc tct gac aaa aca gac ggt act gca ggg aca cca 343
Thr Ile Asn Thr Ser Ser Asp Lys Thr Asp Gly Thr Ala Gly Thr Pro
83 88 93 98
gca ata tca acg acg aca act gtg gaa atc cgc aaa agc agt gtt atg 391
Ala Ile Ser Thr Thr Thr Thr Val Glu Ile Arg Lys Ser Ser Val Met
99 104 109 114
aca act gag atc acc tct aaa gtg gaa aaa agc cca acg aca gcc act 439
Thr Thr Glu Ile Thr Ser Lys Val Glu Lys Ser Pro Thr Thr Ala Thr
115 120 125 130
ggc aat agc tca tgt cct tct act gag acc gag gaa gaa aag gca aaa 487
Gly Asn Ser Ser Cys Pro Ser Thr Glu Thr Glu Glu Glu Lys Ala Lys
131 136 141 146

cgg ctt ctt tac tgt tcg cta tgc aag gtt gct gtc aac tct gcc tcg	535
Arg Leu Leu Tyr Cys Ser Leu Cys Lys Val Ala Val Asn Ser Ala Ser	
147 152 157 162	
cag ctg gag gcg cac aac agt ggt act aag cac aaa acc atg tta gaa	583
Gln Leu Glu Ala His Asn Ser Gly Thr Lys His Lys Thr Met Leu Glu	
163 168 173 178	
gcc cgg aat gga agt ggc act atc aaa gcc ttt cct agg gca gga gtg	631
Ala Arg Asn Gly Ser Gly Thr Ile Lys Ala Phe Pro Arg Ala Gly Val	
179 184 189 194	
aaa ggc aaa gga cct gtt aat aaa gga aac aca ggc ctc caa aat aaa	679
Lys Gly Lys Gly Pro Val Asn Lys Gly Asn Thr Gly Leu Gln Asn Lys	
195 200 205 210	
aca ttt cac tgt gaa atc tgt gat gtg cac gtc aac tcg gaa acg caa	727
Thr Phe His Cys Glu Ile Cys Asp Val His Val Asn Ser Glu Thr Gln	
211 216 221 226	
ctt aaa cag cac att agc agt aga agg cac aaa gac aga gct gct ggg	775
Leu Lys Gln His Ile Ser Ser Arg Arg His Lys Asp Arg Ala Ala Gly	
227 232 237 242	
aag ccc ccg aaa cct aaa tac agt cct tac aac aaa cta cag aag aca	823
Lys Pro Pro Lys Pro Lys Tyr Ser Pro Tyr Asn Lys Leu Gln Lys Thr	
243 248 253 258	
gca cat cca ctg ggg gta aaa tta gta ttt tca aaa gaa cct tca aag	871
Ala His Pro Leu Gly Val Lys Leu Val Phe Ser Lys Glu Pro Ser Lys	
259 264 269 274	
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Pro Leu Ala Pro Arg Ile Leu Pro Asn Pro Leu Ala Ala Ala Ala Ala	
275 280 285 290	
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Ala Ala Ala Val Ala Val Ser Ser Pro Phe Ser Leu Arg Thr Ala Pro	
291 296 301 306	
gca gca aca ctg ttc cag act tct gcg ctt cct ccg gca ctc ctg cgg	1015
Ala Ala Thr Leu Phe Gln Thr Ser Ala Leu Pro Pro Ala Leu Leu Arg	
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cca gct ccc gga ccc att cgg acc gcc cac act cct gtg ctg ttt gct	1063
Pro Ala Pro Gly Pro Ile Arg Thr Ala His Thr Pro Val Leu Phe Ala	
323 328 333 338	
cct tac taa attccaa ataggagtaa ttgtactgca ataatttttc aaaaaacaaa	1119
Pro Tyr *	
339	
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 Met Arg Ser Ala Lys Ser Ala Ser Ser Ser Glu Glu Leu
 1 5 10
 atc aac aaa ctt aac ttt ttg gat gaa gca gaa aag gac ttg gcc acc 158
 Ile Asn Lys Leu Asn Phe Leu Asp Glu Ala Glu Lys Asp Leu Ala Thr
 14 19 24 29
 gtg aat tca aat cca ttt gat gat cct gat gct gca gaa tta aat cca 206
 Val Asn Ser Asn Pro Phe Asp Asp Pro Asp Ala Ala Glu Leu Asn Pro
 30 35 40 45
 ttt gga gat cct gac tca gaa gaa cct atc act gaa aca gct tca cct 254
 Phe Gly Asp Pro Asp Ser Glu Glu Pro Ile Thr Glu Thr Ala Ser Pro
 46 51 56 61
 aga aaa aca gaa gac tct ttt tat aat aac agc tat aat ccc ttt aaa 302
 Arg Lys Thr Glu Asp Ser Phe Tyr Asn Asn Ser Tyr Asn Pro Phe Lys
 62 67 72 77
 gag gtg cag act cca cag tat ttg aac cca ttc gat gag cca gaa gca 350
 Glu Val Gln Thr Pro Gln Tyr Leu Asn Pro Phe Asp Glu Pro Glu Ala
 78 83 88 93
 ttt gtg acc ata aag gat tct cct ccc cag tct aca aaa aga aaa aat 398
 Phe Val Thr Ile Lys Asp Ser Pro Pro Gln Ser Thr Lys Arg Lys Asn
 94 99 104 109
 ata aga cct gtg gat atg agc aag tac ctc tat gct gat agt tct aaa 446
 Ile Arg Pro Val Asp Met Ser Lys Tyr Leu Tyr Ala Asp Ser Ser Lys
 110 115 120 125
 act gaa gaa gaa gaa ttg gat gaa tca aat cct ttt tat gaa cct aaa 494

Thr	Glu	Glu	Glu	Glu	Leu	Asp	Glu	Ser	Asn	Pro	Phe	Tyr	Glu	Pro	Lys	
126					131					136					141	
tca	act	cct	cct	cca	aat	aat	ttg	gta	aat	cct	gtt	caa	gaa	cta	gaa	542
Ser	Thr	Pro	Pro	Pro	Asn	Asn	Leu	Val	Asn	Pro	Val	Gln	Glu	Leu	Glu	
142					147					152					157	
act	gaa	agg	cga	gtg	aaa	aga	aag	gcc	ccg	gct	cca	cca	gtc	ctc	tca	590
Thr	Glu	Arg	Arg	Val	Lys	Arg	Lys	Ala	Pro	Ala	Pro	Pro	Val	Leu	Ser	
158					163					168					173	
cca	aaa	aca	gga	gta	tta	aat	gaa	aac	aca	gtt	tct	gca	gga	aaa	gat	638
Pro	Lys	Thr	Gly	Val	Leu	Asn	Glu	Asn	Thr	Val	Ser	Ala	Gly	Lys	Asp	
174					179					184					189	
ctc	tct	act	tct	cct	aag	cca	agc	cct	ata	cca	agt	cct	gtt	ttg	ggg	686
Leu	Ser	Thr	Ser	Pro	Lys	Pro	Ser	Pro	Ile	Pro	Ser	Pro	Val	Leu	Gly	
190					195					200					205	
cga	aag	cca	aat	gct	agt	cag	tct	ttg	ctt	gta	tgg	tgt	aaa	gaa	gtt	734
Arg	Lys	Pro	Asn	Ala	Ser	Gln	Ser	Leu	Leu	Val	Trp	Cys	Lys	Glu	Val	
206					211					216					221	
aca	aag	aac	tac	cga	gga	gta	aaa	atc	acc	aat	ttt	act	aca	tcg	tgg	782
Thr	Lys	Asn	Tyr	Arg	Gly	Val	Lys	Ile	Thr	Asn	Phe	Thr	Thr	Ser	Trp	
222					227					232					237	
aga	aat	ggg	tta	tct	ttt	tgt	gca	ata	tta	cac	cac	ttt	aga	cca	gat	830
Arg	Asn	Gly	Leu	Ser	Phe	Cys	Ala	Ile	Leu	His	His	Phe	Arg	Pro	Asp	
238					243					248					253	
tta	att	gac	tac	aag	tct	ctg	aat	cct	caa	gat	att	aaa	gag	aac	aac	878
Leu	Ile	Asp	Tyr	Lys	Ser	Leu	Asn	Pro	Gln	Asp	Ile	Lys	Glu	Asn	Asn	
254					259					264					269	
aaa	aag	gca	tac	gat	gga	ttt	gcc	agc	ata	gga	att	tcc	cga	tta	ttg	926
Lys	Lys	Ala	Tyr	Asp	Gly	Phe	Ala	Ser	Ile	Gly	Ile	Ser	Arg	Leu	Leu	
270					275					280					285	
gaa	cct	tct	gat	atg	gta	tta	tta	gca	att	cct	gat	aaa	ctg	act	gtt	974
Glu	Pro	Ser	Asp	Met	Val	Leu	Leu	Ala	Ile	Pro	Asp	Lys	Leu	Thr	Val	
286					291					296					301	
atg	act	tat	ctc	tat	caa	ata	agg	gca	cat	ttc	agt	ggc	caa	gaa	cta	1022
Met	Thr	Tyr	Leu	Tyr	Gln	Ile	Arg	Ala	His	Phe	Ser	Gly	Gln	Glu	Leu	
302					307					312					317	
aat	gtc	gtt	cag	ata	gag	gaa	aac	agc	agt	aaa	agc	aca	tat	aaa	gtt	1070
Asn	Val	Val	Gln	Ile	Glu	Glu	Asn	Ser	Ser	Lys	Ser	Thr	Tyr	Lys	Val	
318					323					328					333	
gga	aac	tat	gaa	aca	gat	aca	aac	agt	tct	gtt	gat	caa	gaa	aaa	ttc	1118
Gly	Asn	Tyr	Glu	Thr	Asp	Thr	Asn	Ser	Ser	Val	Asp	Gln	Glu	Lys	Phe	
334					339					344					349	
tat	gca	gag	ctt	agt	gat	ctg	aag	cgg	gag	cct	gaa	cta	caa	cag	cct	1166
Tyr	Ala	Glu	Leu	Ser	Asp	Leu	Lys	Arg	Glu	Pro	Glu	Leu	Gln	Gln	Pro	

350	355	360	365	
atc agc gga gca gta	gac ttc tta tca cag	gat gac tct gta ttt gta		1214
Ile Ser Gly Ala Val	Asp Phe Leu Ser Gln	Asp Asp Ser Val Phe Val		
366	371	376	381	
aat gat agc ggg gtt	gga gag tca gaa agt	gag cat caa act cct gat		1262
Asn Asp Ser Gly Val	Gly Glu Ser Glu Ser	Glu His Gln Thr Pro Asp		
382	387	392	397	
gat cac ctt agt cca	agc aca gcc tcc cct	tac tgt cgc agg act aaa		1310
Asp His Leu Ser Pro	Ser Thr Ala Ser Pro	Tyr Cys Arg Arg Thr Lys		
398	403	408	413	
agt gac aca gaa ccc	cag aag tct cag cag	agc tct gga agg act tca		1358
Ser Asp Thr Glu Pro	Gln Lys Ser Gln Gln	Ser Ser Gly Arg Thr Ser		
414	419	424	429	
gga tct gat gac cct	gga ata tgt tcc aat	aca gat tca acc caa gca		1406
Gly Ser Asp Asp Pro	Gly Ile Cys Ser Asn	Thr Asp Ser Thr Gln Ala		
430	435	440	445	
cag gtt ttg tta ggc	aaa aag aga cta ttg	aaa gct gag act tta gaa		1454
Gln Val Leu Leu Gly	Lys Lys Arg Leu Leu	Lys Ala Glu Thr Leu Glu		
446	451	456	461	
ttg agt gac tta tat	gtt agt gat aag aag	aag gat atg tct cca ccc		1502
Leu Ser Asp Leu Tyr	Val Ser Asp Lys Lys	Lys Asp Met Ser Pro Pro		
462	467	472	477	
ttt att tgt gag gag	aca gat gaa caa aag	ctt caa act cta gac atc		1550
Phe Ile Cys Glu Glu	Thr Asp Glu Gln Lys	Leu Gln Thr Leu Asp Ile		
478	483	488	493	
ggt agt aac ttg gag	aaa gaa aaa tta gag	aat tcc aga tcc tta gaa		1598
Gly Ser Asn Leu Glu	Lys Glu Lys Leu Glu	Asn Ser Arg Ser Leu Glu		
494	499	504	509	
tgc aga tca gat cca	gaa tct cct atc aaa	caa aca agt tta tct cct		1646
Cys Arg Ser Asp Pro	Glu Ser Pro Ile Lys	Gln Thr Ser Leu Ser Pro		
510	515	520	525	
act tct aaa ctt gga	tac tca tat agt aga	gat cta gac ctt gct aag		1694
Thr Ser Lys Leu Gly	Tyr Ser Tyr Ser Arg	Asp Leu Asp Leu Ala Lys		
526	531	536	541	
aaa aaa cat gct tcc	ctg agg cag acg gag	tct gat cca gat gct gat		1742
Lys Lys His Ala Ser	Leu Arg Gln Thr Glu	Ser Asp Pro Asp Ala Asp		
542	547	552	557	
aga acc act tta aat	cat gca gat cat tca	tca aaa ata gtc cag cat		1790
Arg Thr Thr Leu Asn	His Ala Asp His Ser	Ser Lys Ile Val Gln His		
558	563	568	573	
cga ttg tta tct aga	caa gaa gaa ctt aag	gaa aga gca aga gtt ctg		1838
Arg Leu Leu Ser Arg	Gln Glu Glu Leu Lys	Glu Arg Ala Arg Val Leu		
574	579	584	589	

ctt gag caa gca aga aga gat gca gcc tta aag gcg ggg aat aag cac	1886
Leu Glu Gln Ala Arg Arg Asp Ala Ala Leu Lys Ala Gly Asn Lys His	
590 595 600 605	
aat acc aac aca gcc acc cca ttc tgc aac agg cag cta agt gat cag	1934
Asn Thr Asn Thr Ala Thr Pro Phe Cys Asn Arg Gln Leu Ser Asp Gln	
606 611 616 621	
caa gat gaa gag cga cgt cgg cag ctg aga gag aga gct cgt cag cta	1982
Gln Asp Glu Glu Arg Arg Arg Gln Leu Arg Glu Arg Ala Arg Gln Leu	
622 627 632 637	
ata gca gaa gct cga tct gga gtg aag atg tca gaa ¹ ctt ccc agc tat	2030
Ile Ala Glu Ala Arg Ser Gly Val Lys Met Ser Glu Leu Pro Ser Tyr	
638 643 648 653	
ggt gaa atg gct gca gaa aag ttg aaa gaa agg tca aag gca tct gga	2078
Gly Glu Met Ala Ala Glu Lys Leu Lys Glu Arg Ser Lys Ala Ser Gly	
654 659 664 669	
gat gaa aat gat aat att gag ata gat act aac gag gag atc cct gaa	2126
Asp Glu Asn Asp Asn Ile Glu Ile Asp Thr Asn Glu Glu Ile Pro Glu	
670 675 680 685	
ggc ttt gtt gta gga ggt gga gat gaa ctt act aac tta gaa aat gac	2174
Gly Phe Val Val Gly Gly Gly Asp Glu Leu Thr Asn Leu Glu Asn Asp	
686 691 696 701	
ctt gat act ccc gaa caa aac agt aag ttg gtg gac ttg aag ctg aag	2222
Leu Asp Thr Pro Glu Gln Asn Ser Lys Leu Val Asp Leu Lys Leu Lys	
702 707 712 717	
aag ctc cta gaa gtt cag cca cag gtg gca aat tca ccc tcc agt gct	2270
Lys Leu Leu Glu Val Gln Pro Gln Val Ala Asn Ser Pro Ser Ser Ala	
718 723 728 733	
gcc cag aaa gct gta act gag agc tca gag cag gac atg aaa agt ggc	2318
Ala Gln Lys Ala Val Thr Glu Ser Ser Glu Gln Asp Met Lys Ser Gly	
734 739 744 749	
aca gaa gat ctc cgg act gaa cga tta caa aaa aca aca gaa cgt ttt	2366
Thr Glu Asp Leu Arg Thr Glu Arg Leu Gln Lys Thr Thr Glu Arg Phe	
750 755 760 765	
aga aat cct gtt gtg ttc agc aaa gat tct aca gtc aga aaa act caa	2414
Arg Asn Pro Val Val Phe Ser Lys Asp Ser Thr Val Arg Lys Thr Gln	
766 771 776 781	
ctt cag tct ttc agc caa tat att gag aat aga cca gag atg aaa agg	2462
Leu Gln Ser Phe Ser Gln Tyr Ile Glu Asn Arg Pro Glu Met Lys Arg	
782 787 792 797	
cag aga tca ata cag gaa gat aca aag aaa gga aat gag gag aag gca	2510
Gln Arg Ser Ile Gln Glu Asp Thr Lys Lys Gly Asn Glu Glu Lys Ala	
798 803 808 813	

gcg ata act gaa act cag agg aag cca tca gaa gat gaa gtg ctt aat	2558
Ala Ile Thr Glu Thr Gln Arg Lys Pro Ser Glu Asp Glu Val Leu Asn	
814 819 824 829	
aaa ggg ttc aaa gac acc agt cag tat gta gta gga gaa ttg gca gca	2606
Lys Gly Phe Lys Asp Thr Ser Gln Tyr Val Val Gly Glu Leu Ala Ala	
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Leu Glu Asn Glu Gln Lys Gln Ile Asp Thr Arg Ala Ala Leu Val Glu	
846 851 856 861	
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Lys Arg Leu Arg Tyr Leu Met Asp Thr Gly Arg Asn ⁸ Thr Glu Glu Glu	
862 867 872 877	
gaa gct atg atg cag gaa tgg ttt atg tta gtt aat aag aaa aat gcc	2750
Glu Ala Met Met Gln Glu Trp Phe Met Leu Val Asn Lys Lys Asn Ala	
878 883 888 893	
tta ata agg aga atg aat cag ctc tct ctt ctg gaa aaa gaa cat gat	2798
Leu Ile Arg Arg Met Asn Gln Leu Ser Leu Leu Glu Lys Glu His Asp	
894 899 904 909	
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Leu Glu Arg Arg Tyr Glu Leu Leu Asn Arg Glu Leu Arg Ala Met Leu	
910 915 920 925	
gcc att gaa gac tgg cag aag acc gag gcc cag aag cga cgc gaa cag	2894
Ala Ile Glu Asp Trp Gln Lys Thr Glu Ala Gln Lys Arg Arg Glu Gln	
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ctt ctg cta gat gag ctg gtg gcc ctg gtg aac aag cgc gat gcg ctc	2942
Leu Leu Leu Asp Glu Leu Val Ala Leu Val Asn Lys Arg Asp Ala Leu	
942 947 952 957	
gtc agg gac ctg gac gcg cag gag aag cag gcc gaa gaa gaa gat gag	2990
Val Arg Asp Leu Asp Ala Gln Glu Lys Gln Ala Glu Glu Glu Asp Glu	
958 963 968 973	
cat ttg gag cga act ctg gag caa aac aaa ggc aag atg gcc aag aaa	3038
His Leu Glu Arg Thr Leu Glu Gln Asn Lys Gly Lys Met Ala Lys Lys	
974 979 984 989	
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Glu Glu Lys Cys Val Leu Gln *	
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cacagcctag cagaaagacg cagccttcgt gcttcgctga ctgctgacca ctgaccacc 480
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Met Thr Ala Pro Ser Cys Ala Phe Pro Val Gln Phe Arg Gln
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Pro Ser Val Ser Gly Leu Ser Gln Ile Thr Lys Ser Leu Tyr Ile Ser	
15 20 25 30	
aat ggt gtg gcc gcc aac aac aag ctc atg ctg tct agc aac cag atc	624
Asn Gly Val Ala Ala Asn Asn Lys Leu Met Leu Ser Ser Asn Gln Ile	
31 36 41 46	
acc atg gtc atc aat gtc tca gtg gag gta gtg aac acc ttg tat gag	672
Thr Met Val Ile Asn Val Ser Val Glu Val Val Asn Thr Leu Tyr Glu	
47 52 57 62	
gat atc cag tac atg cag gta cct gtg gct gac tcc cct aac tca cgt	720
Asp Ile Gln Tyr Met Gln Val Pro Val Ala Asp Ser Pro Asn Ser Arg	
63 68 73 78	
ctc tgt gac ttc ttt gac cct att gct gac cat atc cac agc gtg gag	768
Leu Cys Asp Phe Phe Asp Pro Ile Ala Asp His Ile His Ser Val Glu	
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Pro Asn Ser Gly Phe Trp Glu Gln Leu Ile His Tyr Glu Phe Gln Leu	
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Phe Gly Lys Asn Thr Val His Met Val Ser Ser Pro Val Gly Met Ile	
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Pro Asp Ile Tyr Glu Lys Glu Val Arg Leu Met Ile Pro Leu *	
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 Ala Met Gln Glu Phe Gly Thr Met Cys Thr Glu Arg Asp Thr Glu Thr
 17 22 27 32

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 Val Lys Gly Val Leu Pro Tyr Trp Pro Arg Ile Phe Cys Lys Ile Ser
 33 38 43 48

ctt gat cat gac cgt cgc gtc cga gaa gcc aca caa caa gct ttt gaa 192
 Leu Asp His Asp Arg Arg Val Arg Glu Ala Thr Gln Gln Ala Phe Glu
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 Lys Leu Thr Leu Lys Val Lys Lys Gln Leu Ala Pro Tyr Leu Lys Ser
 65 70 75 80

tta atg gga tat tgg cta atg gct cag tgt gat act tac aca cca gct 288
 Leu Met Gly Tyr Trp Leu Met Ala Gln Cys Asp Thr Tyr Thr Pro Ala
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 Ala Phe Ala Ala Lys Asp Ala Phe Glu Ala Ala Phe Pro Pro Ser Lys
 97 102 107 112

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 Gln Pro Glu Ala Ile Ala Phe Cys Lys Asp Glu Ile Thr Ser Val Leu
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 Gln Asp His Leu Ile Lys Glu Thr Pro Asp Thr Leu Ser Asp Pro Gln
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 Thr Val Pro Glu Glu Glu Arg Glu Ala Lys Phe Tyr Arg Val Val Thr
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 Cys Ser Leu Leu Ala Leu Lys Arg Leu Leu Cys Leu Leu Pro Asp Asn
 161 166 171 176

gag ctt gat tct ctg gag gag aaa ttt aag tct ctt tta tca cag aat	576
Glu Leu Asp Ser Leu Glu Glu Lys Phe Lys Ser Leu Leu Ser Gln Asn	
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aag ttt tgg aag tat gga aaa cac agt gta cct cag att cgc tca gct	624
Lys Phe Trp Lys Tyr Gly Lys His Ser Val Pro Gln Ile Arg Ser Ala	
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Tyr Phe Glu Leu Val Ser Ala Leu Cys Gln Arg Ile Pro Gln Leu Met	
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Lys Glu Glu Ala Ser Lys Val Ser Pro Ser Val Leu Leu Ser Ile Asp	
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Asp Ser Asp Pro Ile Val Cys Pro Ala Leu Trp Glu Ala Val Leu Tyr	
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Ser Val Phe Pro Lys Leu Ser Thr Val Ile Arg Glu Gly Gly Arg Gly	
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Leu Ala Thr Val Ile Tyr Pro Tyr Leu Leu Pro Phe Ile Ser Lys Leu	
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cct cat tcc atc aca aat cca aag ttg gat ttc ttc aaa aat ttc ctc	960
Pro His Ser Ile Thr Asn Pro Lys Leu Asp Phe Phe Lys Asn Phe Leu	
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Thr Ser Leu Val Ala Gly Leu Ser Thr Glu Arg Thr Lys Thr Ser Ser	
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Ser Glu Ser Ser Ala Val Ile Ser Ala Phe Tyr Glu Cys Leu Arg Phe	
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Ile Met Gln Gln Asn Leu Gly Glu Glu Glu Ile Glu Gln Met Leu Val	
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Leu Gln His Gly Gln Leu Phe Asn His Leu Ala Glu Thr Leu Ser Ser	
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Val	Ser	Asn	Leu	Leu	Gln	Val	Leu	Gln	Lys	Pro	Lys	Ser	Ser	Leu	Lys	
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Ser	Gly	Leu	Leu	Ser	Pro	Leu	Arg	Lys	Lys	Pro	Leu	Glu	Asp	Leu	Val	
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Cys	Lys	Leu	Ala	Asp	Ile	Ser	Ile	Asn	Tyr	Val	Asn	Glu	Arg	Lys	Ser	
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Cys	Cys	Asp	Asn	Asp	Met	Glu	Arg	Lys	Lys	Val	Leu	Asp	Asp	Leu	Thr	

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Lys Val Asp Leu Lys	Trp Asn Ser Leu Leu	Lys Ile Ile Glu Lys	Ala	
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Glu Asp Leu Glu Ser	Arg Val Ser Ser Glu	Ser His Phe Ser Glu	Arg	
689	694	699	704	
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Trp Thr Leu Leu Ser	Leu Val Leu Ser Gln	His Val Lys Asn Asp	Tyr	
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Thr Leu Phe Lys Lys	Lys Lys Leu Ser Glu	Ala Glu Ser Ser Asp	Ser	
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Phe Gln Leu Cys Ala	Gln Ser Lys Glu Lys	Thr His Leu Pro Asp	Phe	
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Val His Gln Thr Asp	Ser Ser Tyr Lys Glu	Ser Thr Phe Leu His	Leu	
817	822	827	832	
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Ser Ala Leu Trp Leu	Lys Asn Gln Val Gln	Ala Ser Ser Leu Asp	Ile	
833	838	843	848	
aac agt ctc caa gtc	ctc ttg tct gct gtt	gat gat ttg cta aat	aca	2592
Asn Ser Leu Gln Val	Leu Leu Ser Ala Val	Asp Asp Leu Leu Asn	Thr	
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gta atg ccg aac gac agt gaa tgg gaa aag atg agg cag tct ctt cct Val Met Pro Asn Asp Ser Glu Trp Glu Lys Met Arg Gln Ser Leu Pro 881 886 891 896	2688
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Arg Pro Val Gln Ile Ala Val Tyr His Met Leu Tyr Lys Leu Met Pro	
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Ser Ile Gln Glu Asp Leu Leu Glu Asn Val Leu Gly Cys Ile Pro Val	
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Lys Ser Leu Asn Lys Leu Leu Tyr His Leu Phe Arg Leu Met Pro Glu	
1441	1446 1451 1456
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Asn Pro Thr Tyr Ala Glu Thr Ala Val Glu Val Pro Asn Lys Asp Pro	
1457	1462 1467 1472
aaa aca ttc ttt act gag gag ctc cag ctg agt att aga gaa aca aca	4464
Lys Thr Phe Phe Thr Glu Glu Leu Gln Leu Ser Ile Arg Glu Thr Thr	
1473	1478 1483 1488
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Met Leu Pro Tyr His Ile Pro His Leu Ala Cys Ser Val Tyr His Met	
1489	1494 1499 1504
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Thr Leu Lys Asp Leu Pro Ala Met Val Arg Leu Trp Trp Asn Ser Ser	
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Val Met Ala Thr Tyr Thr Ile Glu Asp Ile Val Ile Glu Leu Ile Ile				
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Cys Met Ile Cys Phe Ser Val Ile His Gly Phe Asn Tyr Ser Leu Pro				
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taatgttatt atttgattgt tataccatat gtgccatta aaattctttt taattaaaaa	7303

tattttcaaat atgcagaaaa ataataatat aaatgccctt gtacccttca cataactattt 7363
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 tcctctgcag caggaggcag agctgtggga tgaatgaggt tcgccaggtc tcccttacct 240
 atcctgggtc cccagctcct tctcactctc ttccttgca gcctcgaagc ggaggatccc 300
 tgtgtcccag ccgggc atg gcc gac ccc cac cag ctt ttc gat gac aca 349
 Met Ala Asp Pro His Gln Leu Phe Asp Asp Thr
 1 5
 agt tca gcc cag agc cgg ggc tat ggg gcc cag cgg gca cct ggt ggc 397
 Ser Ser Ala Gln Ser Arg Gly Tyr Gly Ala Gln Arg Ala Pro Gly Gly
 12 17 22 27
 cta agt tat cct gca gcc tct ccc acg ccc cat gca gcc ttc ctg gct 445
 Leu Ser Tyr Pro Ala Ala Ser Pro Thr Pro His Ala Ala Phe Leu Ala
 28 33 38 43
 gac ccg gtg tcc aac atg gcc atg gcc tat ggg agc agc ctg gcc gcg 493
 Asp Pro Val Ser Asn Met Ala Met Ala Tyr Gly Ser Ser Leu Ala Ala
 44 49 54 59
 cag ggc aag gag ctg gtg gat aag aac gtg agt ggg cgg ggc tgg tgg 541
 Gln Gly Lys Glu Leu Val Asp Lys Asn Val Ser Gly Arg Gly Trp Trp
 60 65 70 75
 gag tgg ggg gat gca cgg ggc cac agg gct tca gac ttg agc tct gcc 589
 Glu Trp Gly Asp Ala Arg Gly His Arg Ala Ser Asp Leu Ser Ser Ala
 76 81 86 91
 tcc cca gat cga ccg ctt cat ccc cat cac caa gct caa gta tta ctt 637
 Ser Pro Asp Arg Pro Leu His Pro His His Gln Ala Gln Val Leu Leu
 92 97 102 107
 tgc tgt gga cac cat gta tgt ggg cag aaa gct ggg cct gct gtt ctt 685
 Cys Cys Gly His His Val Cys Gly Gln Lys Ala Gly Pro Ala Val Leu

108	113	118	123	
ccc cta cct aca cca gga ctg gga agt gca gta cca aca gga cac ccc				733
Pro Leu Pro Thr Pro Gly Leu Gly Ser Ala Val Pro Thr Gly His Pro				
124	129	134	139	
ggg ggc ccc ccg ctt tga cgtcaa tgccccggac ctctacattc cagcaatggc				787
Gly Gly Pro Pro Leu *				
140	145			
tttcatcacc tacgttttgg tggctgggtct tgcgctgggg acccaggata gggttctcccc				847
agacctcctg gggctgcaag cgagctcagc cctggcctgg ctgacctgg aggtgctggc				907
catcctgctc agcctctatc tggtcactgt caacaccgac ctcaccacca tcgacctggc				967
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ctgggtggta ctggctactc gcagtcttaa atctagtagg gccgaaagta ctagaaggag	180

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gttgtccaga gaggtctgcc ctcaaaatgc tcctgaaaga tgcttgctta tgctttttctt 240
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ttacttaatt tgcattgttat ttttagaact ccccttttta agggtcacat tttgcctcag 360
aaaaccctgt ctga atg tct cct gtt tgt cgg tca gga ctg act ctg cct 410
                Met Ser Pro Val Cys Arg Ser Gly Leu Thr Leu Pro
                  1             5             10

ttt ctt tcc ttt tcc atg tgc cac tcc tgt cct ccc ttt gcc ctg cct 458
Phe Leu Ser Phe Ser Met Cys His Ser Cys Pro Pro Phe Ala Leu Pro
 13             18             23             28

gat ttc tgc act gtc ctg tcc cac ctg tct gtc tcc tct tgg ttt tgc 506
Asp Phe Cys Thr Val Leu Ser His Leu Ser Val Ser Ser Trp Phe Cys
 29             34             39             44

ccg tgt cag cct ccc ctt ccg tgc cct ctg ccc ccc ttg cag aac aag 554
Pro Cys Gln Pro Pro Leu Pro Cys Pro Leu Pro Pro Leu Gln Asn Lys
 45             50             55             60

acc gcg aaa ggc agc ctg agc aca gag cag tgg gag cgg ggg tga ggg 602
Thr Ala Lys Gly Ser Leu Ser Thr Glu Gln Ser Glu Arg Gly *
 61             66             71

gggcagtgtg ctgctgggaa tggaaaggac agcaagcaca ggtgagtcgg ggccaccggg 662
ctccctgcat cctgccccgg ctcccagcag gcgtcgttgc ctctgccctc ctgctcgtct 722
tatgctctgc caccagcatt tcattcctgtg gatgacaacg ccagggtggat gcagtgttct 782
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<213> Homo sapiens

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Met	Trp	Asn	Phe	Thr	Leu	Ile	Ser	Lys	Val	Lys	Ile	Ser	Arg	Glu	Val	
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Thr	Met	Ile	Ala	Ser	Lys	Phe	Gly	Ile	Gly	Gln	Gln	Val	Arg	His	Ser	
17					22					27					32	
ctg	tta	ggg	tat	ctc	gga	gtg	gtc	gtg	gat	atc	gac	ccg	gtt	tat	tcg	204
Leu	Leu	Gly	Tyr	Leu	Gly	Val	Val	Val	Asp	Ile	Asp	Pro	Val	Tyr	Ser	
33					38					43					48	
ctc	tct	gaa	ccg	tcg	cct	gat	gag	ctg	gcg	gtg	aat	gac	gag	ctt	cgc	252
Leu	Ser	Glu	Pro	Ser	Pro	Asp	Glu	Leu	Ala	Val	Asn	Asp	Glu	Leu	Arg	
49					54					59					64	
gcc	gct	ccg	tgg	tat	cac	gta	gtg	atg	gag	gac	gat	aac	ggc	cta	ccg	300
Ala	Ala	Pro	Trp	Tyr	His	Val	Val	Met	Glu	Asp	Asp	Asn	Gly	Leu	Pro	
65					70					75					80	
gtt	cat	acc	tac	ctg	gct	gaa	gcc	cag	cta	agt	agc	gaa	ttg	cag	gat	348
Val	His	Thr	Tyr	Leu	Ala	Glu	Ala	Gln	Leu	Ser	Ser	Glu	Leu	Gln	Asp	
81					86					91					96	
gaa	cat	cct	gaa	cag	cca	tcc	atg	gat	gag	ctg	gcg	cag	acc	atc	cgc	396
Glu	His	Pro	Glu	Gln	Pro	Ser	Met	Asp	Glu	Leu	Ala	Gln	Thr	Ile	Arg	
97					102					107					112	
aaa	caa	ctc	cag	gcc	ccg	cgt	ctg	cgt	aac	taa	tccttgaa	caa	atccccg			447
Lys	Gln	Leu	Gln	Ala	Pro	Arg	Leu	Arg	Asn	*						
113					118					123						
gaagggtttt	gccttccggg	gattttttat	ttggccaggc	ccaggcgagg	gatctcaata											507
gccgggcagc	gatccatcac	cacatttaac	ccggcatccc	gtgccagtag	tgccgcttgc											567
tcattaatca	ccccagttg	catccagaga	gttttcgcgc	caatggcaat	agcttctgt											627
gccacgcccc	acgccgcttc	tgaattacgg	aaaacatcga	ccatatacgac	tttttcggga											687
acgtctgcc	gcgtgccata	ccccttcttg	cccagcagcg	ttttgccggc	aacttttggc											747
gaaaccggaa	tgacgtgata	cccctggctg	agtagatatt	tcatacgcg	atagctggga											807
cgatcggggt	tgctgcttgc	ccccaccagc	gc													839

<210> 369
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 <213> Homo sapiens
 <220> /
 <221> CDS /
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gggcgcgacc atctgcgctg cggcgccggc gactcagcgc tgcctcagtc tgcggtgggc      180

agcggaggag tctgtctgtg cctgagagcg cagctgtgct cctgggcacc gcgcagtcctg      240

ccccgcggc tcttggccag accacccta ggacccctg cccaagtcg cagcc atg      298
                                   Met
                                   1

aac tac ctg cgg cgc cgc ctg tgc gac agc aac ttt atg gcc aat ctg      346
Asn Tyr Leu Arg Arg Arg Leu Ser Asp Ser Asn Phe Met Ala Asn Leu
  2                               7                               12                               17

cca aat ggg tac atg aca gac ctg cag cgt ccg cag ccg ccc cca ccg      394
Pro Asn Gly Tyr Met Thr Asp Leu Gln Arg Pro Gln Pro Pro Pro Pro
  18                               23                               28                               33

ccg ccc ggt gcc cac agc ccc gga gcc acg ccc ggt ccc ggg acc gcc      442
Pro Pro Gly Ala His Ser Pro Gly Ala Thr Pro Gly Pro Gly Thr Ala
  34                               39                               44                               49

act gcc gag agg tcc tcc ggg gtc gcc cca gcg gcc tct ccg gcc gcc      490
Thr Ala Glu Arg Ser Ser Gly Val Ala Pro Ala Ala Ser Pro Ala Ala
  50                               55                               60                               65

cct agc ccc ggg tcc tgc ggg ggc ggt ggc ttc ttc tgc tgc ctg tcc      538
Pro Ser Pro Gly Ser Ser Gly Gly Gly Gly Phe Phe Ser Ser Leu Ser
  66                               71                               76                               81

aac gcg gtc aag cag acc acg gcg gcg gca gct gcc acc ttc agc gag      586
Asn Ala Val Lys Gln Thr Thr Ala Ala Ala Ala Ala Thr Phe Ser Glu
  82                               87                               92                               97

cag gtg ggc ggc ggc tct ggg ggc gca ggc cgc ggg gga gcc gcc tcc      634
Gln Val Gly Gly Gly Ser Gly Gly Ala Gly Arg Gly Gly Ala Ala Ser
  98                               103                               108                               113

agg gtg ctg ctg gtc atc gac gag ccg cac acc gac tgg gca aaa tac      682
Arg Val Leu Leu Val Ile Asp Glu Pro His Thr Asp Trp Ala Lys Tyr
  114                               119                               124                               129

ttc aaa ggg aaa aag atc cat gga gaa att gac att aaa gta gaa cag      730
Phe Lys Gly Lys Lys Ile His Gly Glu Ile Asp Ile Lys Val Glu Gln
  130                               135                               140                               145

gcc gaa ttc tct gat ctc aac ctt gtg gcc cat gcc aat ggt gga ttc      778
Ala Glu Phe Ser Asp Leu Asn Leu Val Ala His Ala Asn Gly Gly Phe
  146                               151                               156                               161

tct gtg gat atg gaa gtt ctt cgg aat ggg gtg aag gtc gtg cgg tct      826
Ser Val Asp Met Glu Val Leu Arg Asn Gly Val Lys Val Val Arg Ser
  162                               167                               172                               177

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ctg aag ccg gat ttt gtg ctg atc cgc cag cac gcc ttc agc atg gca	874
Leu Lys Pro Asp Phe Val Leu Ile Arg Gln His Ala Phe Ser Met Ala	
178 183 188 193	
cgc aac gga gac tac cgc agt ttg gtc att ggg ctg cag tat gct gga	922
Arg Asn Gly Asp Tyr Arg Ser Leu Val Ile Gly Leu Gln Tyr Ala Gly	
194 199 204 209	
atc ccc agt gtt aac tcc ttg cat tct gtc tac aac ttc tgt gac aag	970
Ile Pro Ser Val Asn Ser Leu His Ser Val Tyr Asn Phe Cys Asp Lys	
210 215 220 225	
ccc tgg gtg ttt gcc cag atg gtt cga ctg cat aag aaa ctg ggg aca	1018
Pro Trp Val Phe Ala Gln Met Val Arg Leu His Lys Lys Leu Gly Thr	
226 231 236 241	
gaa gaa ttc cct cta att gat cag acc ttc tac ccc aat cac aaa gaa	1066
Glu Glu Phe Pro Leu Ile Asp Gln Thr Phe Tyr Pro Asn His Lys Glu	
242 247 252 257	
atg ctc agc agt aca acg tac ccc gtg gtt gtg aag atg ggg cac gca	1114
Met Leu Ser Ser Thr Thr Tyr Pro Val Val Val Lys Met Gly His Ala	
258 263 268 273	
cac tct ggg atg ggc aag gtc aag gtt gac aac cag cat gac ttc cag	1162
His Ser Gly Met Gly Lys Val Lys Val Asp Asn Gln His Asp Phe Gln	
274 279 284 289	
gac atc gca agt gtc gtg gca ctg acc aag acg tat gcc act gcc gag	1210
Asp Ile Ala Ser Val Val Ala Leu Thr Lys Thr Tyr Ala Thr Ala Glu	
290 295 300 305	
ccc ttc atc gat gcc aaa tat gac gtg cgt gtc cag aag att ggg cag	1258
Pro Phe Ile Asp Ala Lys Tyr Asp Val Arg Val Gln Lys Ile Gly Gln	
306 311 316 321	
aac tac aag gcc tac atg agg acg tca gtg tca ggg aac tgg aag acc	1306
Asn Tyr Lys Ala Tyr Met Arg Thr Ser Val Ser Gly Asn Trp Lys Thr	
322 327 332 337	
aat act ggc tct gcg atg ctg gag caa att gcc atg tct gac aga tac	1354
Asn Thr Gly Ser Ala Met Leu Glu Gln Ile Ala Met Ser Asp Arg Tyr	
338 343 348 353	
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Lys Leu Trp Val Asp Thr Cys Ser Glu Ile Phe Gly Gly Leu Asp Ile	
354 359 364 369	
tgc gca gtg gaa gcg cta cat ggc aag gac gga agg gat cac atc att	1450
Cys Ala Val Glu Ala Leu His Gly Lys Asp Gly Arg Asp His Ile Ile	
370 375 380 385	
gag gtg gtg ggt tcc tcc atg ccg ctc att ggt gac cac cag gat gaa	1498
Glu Val Val Gly Ser Ser Met Pro Leu Ile Gly Asp His Gln Asp Glu	
386 391 396 401	
gac aaa cag ctc atc gta gag ctc gtg gtc aac aag atg gct cag gcc	1546

Asp	Lys	Gln	Leu	Ile	Val	Glu	Leu	Val	Val	Asn	Lys	Met	Ala	Gln	Ala		
402					407					412					417		
ctg	ccc	cgg	cag	cga	cag	cgc	gat	gcc	tcc	cct	ggc	agg	ggc	tcc	cat	1594	
Leu	Pro	Arg	Gln	Arg	Gln	Arg	Asp	Ala	Ser	Pro	Gly	Arg	Gly	Ser	His		
418					423					428					433		
ggc	cag	act	ccg	tcc	cca	ggg	gcc	ctg	ccc	ttg	ggc	cgc	cag	acc	tcc	1642	
Gly	Gln	Thr	Pro	Ser	Pro	Gly	Ala	Leu	Pro	Leu	Gly	Arg	Gln	Thr	Ser		
434					439					444					449		
cag	cag	ccc	gca	ggg	ccc	ccg	gct	cag	cag	cga	ccc	cca	cca	cag	ggc	1690	
Gln	Gln	Pro	Ala	Gly	Pro	Pro	Ala	Gln	Gln	Arg	Pro	Pro	Pro	Gln	Gly		
450					455					460					465		
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Gly	Pro	Pro	Gln	Pro	Gly	Pro	Gly	Pro	Gln	Arg	Gln	Gly	Pro	Pro	Leu		
466					471					476					481		
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Gln	Gln	Arg	Pro	Pro	Pro	Gln	Gly	Gln	Gln	His	Leu	Ser	Gly	Leu	Gly		
482					487					492					497		
ccc	cca	gct	ggc	agc	ccc	ctg	ccc	cag	cgc	ctt	cca	agt	ccc	acc	tca	1834	
Pro	Pro	Ala	Gly	Ser	Pro	Leu	Pro	Gln	Arg	Leu	Pro	Ser	Pro	Thr	Ser		
498					503					508					513		
gcg	ccc	cag	cag	ccc	gcg	tcc	cag	gcc	gcg	ccg	ccg	acc	cag	ggt	caa	1882	
Ala	Pro	Gln	Gln	Pro	Ala	Ser	Gln	Ala	Ala	Pro	Pro	Thr	Gln	Gly	Gln		
514					519					524					529		
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Gly	Arg	Gln	Ser	Arg	Pro	Val	Ala	Gly	Gly	Pro	Gly	Ala	Pro	Pro	Ala		
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Ala	Arg	Pro	Pro	Ala	Ser	Pro	Ser	Pro	Gln	Arg	Gln	Ala	Gly	Pro	Pro		
546					551					556					561		
cag	gct	acc	cgt	cag	aca	tcc	gtc	tct	ggc	ccg	gct	ccg	cca	aag	gcc	2026	
Gln	Ala	Thr	Arg	Gln	Thr	Ser	Val	Ser	Gly	Pro	Ala	Pro	Pro	Lys	Ala		
562					567					572					577		
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Ser	Gly	Ala	Pro	Pro	Gly	Gly	Gln	Gln	Arg	Gln	Gly	Pro	Pro	Gln	Lys		
578					583					588					593		
ccc	cca	ggc	cca	gcc	ggc	ccc	aca	cgc	cag	gcc	agc	cag	gcg	ggt	ccc	2122	
Pro	Pro	Gly	Pro	Ala	Gly	Pro	Thr	Arg	Gln	Ala	Ser	Gln	Ala	Gly	Pro		
594					599					604					609		
gtg	ccc	cgc	act	ggg	cca	ccc	acc	acg	cag	cag	cct	cgg	ccc	agc	ggc	2170	
Val	Pro	Arg	Thr	Gly	Pro	Pro	Thr	Thr	Gln	Gln	Pro	Arg	Pro	Ser	Gly		
610					615					620					625		
ccg	ggc	ccc	gct	gga	cgt	ccc	aaa	cca	cag	ctg	gcc	cag	aaa	ccc	agc	2218	
Pro	Gly	Pro	Ala	Gly	Arg	Pro	Lys	Pro	Gln	Leu	Ala	Gln	Lys	Pro	Ser		

626	631	636	641	
cag gac gtg ccg cca	ccc gcc acc gcc gct	gca ggg gga cct ccg cac		2266
Gln Asp Val Pro Pro	Pro Ala Thr Ala Ala	Ala Gly Gly Pro Pro His		
642	647	652	657	
ccc cag ctc aac aaa	tcc cag tct ctg acc	aat gcc ttc aac ctt cca		2314
Pro Gln Leu Asn Lys	Ser Gln Ser Leu Thr	Asn Ala Phe Asn Leu Pro		
658	663	668	673	
gag cca gcc ccg ccc	agg ccc agc ctt agc	cag gac gag gtg aaa gct		2362
Glu Pro Ala Pro Pro	Arg Pro Ser Leu Ser	Gln Asp Glu Val Lys Ala		
674	679	684	689	
gag acc atc cgc agc	ctg agg aag tct ttc	gcc agc ctc ttc tcc gac		2410
Glu Thr Ile Arg Ser	Leu Arg Lys Ser Phe	Ala Ser Leu Phe Ser Asp		
690	695	700	705	
tga tacc ccactctgag	aacccccaaaa	tccttgggca acccttctct	gggccctgaa	2467
*				
706				
tccattttctc acttttggag	tctccaaatc ccttgagaac	ccatctcccg gttctccaag		2527
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ctaaatccgg ttctcacatg	tggaaatcccc aagtcctttt	agaaccccac tcgtgggtcac		2647
ttcaggatct actttctgttt	tagaacctcc acattcctga	agacctccgc ccctgggttc		2707
cccagagggc gttttccttc	ctggaagtgc ccaaatacca	ggcaacccat tgcagaatcc		2767
cttcctggag ccctgaagtt	cctggaaaac cctatttttg	gtcccaaatc tctccagcac		2827
acctattttcc catcataatt	ttccaaatcc tcaagaaacc	cctactgttg agccccttcc		2887
catggatctt ccacccctct	gaagatccac atcttcaaat	gccaccaaac acctagcccc		2947
acaaggattt cccttcacca	gctcccctca acctcattca	ataccttggg agcccctccc		3007
acttccagga cccctcgggt	ccccagggc cccctcccc	agtttctctgc ctctgacagc		3067
tgtctttaaa tatgcaaact	ccacccatct tcccagaatc	ctttgcacac ggaaggccag		3127
tgggtctccgc ttccccacct	ttgtctgtgtgt	gtctgtgtct gtgactgacg	tggcctcctt	3187
ttgtgccgtg cttggcatat	gtggtcctcg ttcacgtgc	cgctgtgggt gatgctgca		3247
gtgacgtgt ttatgtggtc	cgcacctccc cctgaccttc	actccttgcc tggactcacc		3307
ccaccttca gcggctctga	accccaagag aagagtcggg	aaacaaaata aacaagcaaa		3367
ggcccagcaa aaaaaaaaaa	a			3388

<210> 370
 <211> 1136
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (353) .. (727)

<400> 370

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ggaattcaat gctgcacaag ctctgagccc tcttggggct gcgaagttcc tctgatggga      60
ggtgtgtggt ggccatccca tccctgtgta agacctgggg aaaccactct tcaaggttca      120
ggaggaggga gggcggcccc cgacccttaa ccagagcgag gttgttgctt tgtgtccaca      180
gggaccagga gcgaaccatg atgccaggta ggaggggctg actgggccct gcgagcgcgt      240
gcctttcctg ctgggcagag gccctccaca tggggccacg cgggccgggc acaggagggc      300
agtcagatgg gcagggcctg agagcctccc tctctcctt aggtccctaa tc      atg      355
                                     Met
                                     1

gac tcc cca aga gct ggc acc cac cag ggc ccc ctc gat gca gag aca      403
Asp Ser Pro Arg Ala Gly Thr His Gln Gly Pro Leu Asp Ala Glu Thr
   2               7               12              17

gag gtc ggt gct gac cgc tgc acg tcg act gcc tac cag gag cag agg      451
Glu Val Gly Ala Asp Arg Cys Thr Ser Thr Ala Tyr Gln Glu Gln Arg
  18               23               28              33

ccc cag gtg gag caa gtt ggc aaa cag gct cct ctc tcc cca ggg ctg      499
Pro Gln Val Glu Gln Val Gly Lys Gln Ala Pro Leu Ser Pro Gly Leu
  34               39               44              49

ccg gca atg ggg ggg cct ggc ccc ggc ccc tgt gag gac ccc gcg ggt      547
Pro Ala Met Gly Gly Pro Gly Pro Gly Pro Cys Glu Asp Pro Ala Gly
  50               55               60              65

gct ggg gga gca ggt gca ggg ggc tcc gag ccc ctg gtg act gtc acc      595
Ala Gly Gly Ala Gly Ala Gly Gly Ser Glu Pro Leu Val Thr Val Thr
  66               71               76              81

gtg cag tgc gcc ttc aca gtg gcc ctg agg gca cga aga gga gcc gac      643
Val Gln Cys Ala Phe Thr Val Ala Leu Arg Ala Arg Arg Gly Ala Asp
  82               87               92              97

ctg tcc agc ctg cgg gca ctg ctg ggc caa gcc cct ccc tca cca ggc      691
Leu Ser Ser Leu Arg Ala Leu Leu Gly Gln Ala Pro Pro Ser Pro Gly
  98               103              108             113

cca gct tgg gca act cag tta cct agc ccc agg tga ggac gggcactggg      741
Pro Ala Trp Ala Thr Gln Leu Pro Ser Pro Arg *
 114               119              124

tcccatcccc cgaggaggag tcgctgcaga gggcctggca ggacgcagct gcctgcccc      801

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gggggctgca gctgcagtgc aggggagccg ggggtcggcc ggtcctctac caggtggtgg      861
cccagcacag ctactccgcc caggggccag aggacctggg cttccgacag ggggacacgg      921
tggacgtcct gtgtgaagtg gaccaggcat ggctggaggg ccactgtgac ggccgcatcg      981
gcattctccc caagtgttc gtggtccccg ccggccctcg gatgtcagga gccccggcc      1041
gcctgccccg atcccagcag ggagatcagc cctaattgat ctgtgtccat gatgctttta      1101
ataaaaacaa cccccactgc aaaaaaaaaa aaaaaa                                1136

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<210> 371
<211> 2575
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (225) .. (1568)

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<220>
<221> misc_feature
<222> (1) ... (2575)
<223> n = a,t,c or g

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<400> 371
taagcttgcg gccgccgccc gccaccgcg cgctcgcttg accgcggcgc ccgcccccg      60
ccgcccccg ccgtccccct gccgcgatgc cctcccttcg gggccccggc ggcccgcgcc      120
cctgctaggc tgcggcgga tggcccgcg gcccggcgcg acctctgcgg attgcatcgg      180
tgtgtggcgg cggggcatgc ccagagcacc gggcacggcc ttca atg ggc gag gac      236
                               Met Gly Glu Asp
                               1

```

```

acg gac acg cgg aaa att aac cac agc ttc ctg cgg gac cac agc tat      284
Thr Asp Thr Arg Lys Ile Asn His Ser Phe Leu Arg Asp His Ser Tyr
  5              10              15              20

```

```

gtg act gaa gct gac atc atc tct acc gtt gag ttc aac cac acg gga      332
Val Thr Glu Ala Asp Ile Ile Ser Thr Val Glu Phe Asn His Thr Gly
  21              26              31              36

```

```

gag ctg ctg gcc aca ggt gac aag ggc ggc cgg gtc gtc atc ttc cag      380
Glu Leu Leu Ala Thr Gly Asp Lys Gly Gly Arg Val Val Ile Phe Gln
  37              42              47              52

```

```

cgg gaa cca gag agt aaa aat gcg ccc cac agc cag ggc gaa tac gac      428
Arg Glu Pro Glu Ser Lys Asn Ala Pro His Ser Gln Gly Glu Tyr Asp
  53              58              63              68

```

gtg tac agc act ttc cag agc cac gag ccg gag ttt gac tat ctc aag	476
Val Tyr Ser Thr Phe Gln Ser His Glu Pro Glu Phe Asp Tyr Leu Lys	
69 74 79 84	
agc ctg gag ata gag gag aag atc aac aag atc aag tgg ctc cca cag	524
Ser Leu Glu Ile Glu Glu Lys Ile Asn Lys Ile Lys Trp Leu Pro Gln	
85 90 95 100	
cag aac gcc gcc cac tca ctc ctg tcc acc aac gat aaa act atc aaa	572
Gln Asn Ala Ala His Ser Leu Leu Ser Thr Asn Asp Lys Thr Ile Lys	
101 106 111 116	
tta tgg aag att acc gaa cga gat aaa agg ccc gaa gga tac aac ctg	620
Leu Trp Lys Ile Thr Glu Arg Asp Lys Arg Pro Glu Gly Tyr Asn Leu	
117 122 127 132	
aag gat gaa gag ggg aaa ctt aag gac ctg tcc acg gtg acg tca ctg	668
Lys Asp Glu Glu Gly Lys Leu Lys Asp Leu Ser Thr Val Thr Ser Leu	
133 138 143 148	
cag gtg cca gtg ctg aag ccc atg gat ctg atg gtg gag gtg agc cct	716
Gln Val Pro Val Leu Lys Pro Met Asp Leu Met Val Glu Val Ser Pro	
149 154 159 164	
cgg agg atc ttt gcc aat ggc cac acc tac cac atc aac tcc atc tcc	764
Arg Arg Ile Phe Ala Asn Gly His Thr Tyr His Ile Asn Ser Ile Ser	
165 170 175 180	
gtc aac agt gac tgc gag acc tac atg tcg gcg gat gac ctg cgc atc	812
Val Asn Ser Asp Cys Glu Thr Tyr Met Ser Ala Asp Asp Leu Arg Ile	
181 186 191 196	
aac ctc tgg cac ctg gcc atc acc gac agg agc ttc aac atc gtg gac	860
Asn Leu Trp His Leu Ala Ile Thr Asp Arg Ser Phe Asn Ile Val Asp	
197 202 207 212	
atc aag ccg gcc aac atg gag gac ctt acg gag gtg atc aca gca tct	908
Ile Lys Pro Ala Asn Met Glu Asp Leu Thr Glu Val Ile Thr Ala Ser	
213 218 223 228	
gag ttc cat ccg cac cac tgc aac ctc ttc gtc tac agc agc agc aag	956
Glu Phe His Pro His His Cys Asn Leu Phe Val Tyr Ser Ser Ser Lys	
229 234 239 244	
ggc tcc ctg cgg ctc tgc gac atg cgg gca gct gcc ctg tgt gac aag	1004
Gly Ser Leu Arg Leu Cys Asp Met Arg Ala Ala Ala Leu Cys Asp Lys	
245 250 255 260	
cat tcc aag ctc ttt gaa gag cct gag gac ccc agt aac cgc tca ttc	1052
His Ser Lys Leu Phe Glu Glu Pro Glu Asp Pro Ser Asn Arg Ser Phe	
261 266 271 276	
ttc tcg gaa atc atc tcc tcc gtg tcc gac gtg aag ttc agc cac agc	1100
Phe Ser Glu Ile Ile Ser Ser Val Ser Asp Val Lys Phe Ser His Ser	
277 282 287 292	
ggc cgc tac atg ctc acc cgg gac tac ctt aca gtc aag gtc tgg gac	1148

Gly	Arg	Tyr	Met	Leu	Thr	Arg	Asp	Tyr	Leu	Thr	Val	Lys	Val	Trp	Asp	
293					298					303					308	
ctg	aac	atg	gag	gca	aga	ccc	ata	gag	acc	tac	cag	gtc	cat	gac	tac	1196
Leu	Asn	Met	Glu	Ala	Arg	Pro	Ile	Glu	Thr	Tyr	Gln	Val	His	Asp	Tyr	
309					314					319					324	
ctt	cgg	agc	aag	ctc	tgt	tcc	ctg	tac	gag	aac	gac	tgc	att	ttc	gac	1244
Leu	Arg	Ser	Lys	Leu	Cys	Ser	Leu	Tyr	Glu	Asn	Asp	Cys	Ile	Phe	Asp	
325					330					335					340	
aag	ttt	gaa	tgt	gcc	tgg	aac	ggg	agc	gac	agc	gtc	atc	atg	acc	ggg	1292
Lys	Phe	Glu	Cys	Ala	Trp	Asn	Gly	Ser	Asp	Ser	Val	Ile	Met	Thr	Gly	
341					346					351					356	
gcc	tac	aac	aac	ttc	ttc	cgc	atg	ttc	gat	cgg	aac	acc	aag	cgg	gac	1340
Ala	Tyr	Asn	Asn	Phe	Phe	Arg	Met	Phe	Asp	Arg	Asn	Thr	Lys	Arg	Asp	
357					362					367					372	
gtg	acc	ctg	gag	gcc	tcg	agg	gaa	agc	agc	aag	ccc	cgg	gct	gtg	ctc	1388
Val	Thr	Leu	Glu	Ala	Ser	Arg	Glu	Ser	Ser	Lys	Pro	Arg	Ala	Val	Leu	
373					378					383					388	
aag	cca	cgg	cgc	gtg	tgc	gtg	ggg	ggc	aag	cgc	cgg	cgt	gat	gac	atc	1436
Lys	Pro	Arg	Arg	Val	Cys	Val	Gly	Gly	Lys	Arg	Arg	Arg	Asp	Asp	Ile	
389					394					399					404	
agt	gtg	gac	agc	ttg	gac	ttc	acc	aag	aag	atc	ctg	cac	acg	gcc	tgg	1484
Ser	Val	Asp	Ser	Leu	Asp	Phe	Thr	Lys	Lys	Ile	Leu	His	Thr	Ala	Trp	
405					410					415					420	
cac	ccg	gct	gag	aac	atc	att	gcc	atc	gcc	gcc	acc	aac	aac	ctg	tac	1532
His	Pro	Ala	Glu	Asn	Ile	Ile	Ala	Ile	Ala	Ala	Thr	Asn	Asn	Leu	Tyr	
421					426					431					436	
atc	ttc	cag	gac	aag	gta	aac	tct	gac	atg	cac	tag	gtat	gtgcagttcc			1582
Ile	Phe	Gln	Asp	Lys	Val	Asn	Ser	Asp	Met	His	*					
437					442					447						
cggccccctgc	cacccagcct	catgcaagtc	atccccgaca	tgaccttcac	gaccgcaatg											1642
caaggagggg	aagaaagtca	cagcactgat	gaggacagct	gcagaggtgg	cagtgtgtgg											1702
acacaggaag	tttgggcccc	ctccctgccc	cagctttcct	aggccagaat	tgtgttttggc											1762
agtaattgtc	tgttttaaaa	aataaaaagg	aaaggaagcg	ttcaccgcca	caaatcataa											1822
aatggacatg	actgtggagt	cttacagttc	agggttcttt	cattcacgtc	ccttcctgtc											1882
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tccagtgcgt	cctgtttgcag	ggaccggagc	tgatgggagc	tgcttctccc	ccatgcctca											2002
ctggtcccag	atcagggctc	cagggacaga	tgatgagtct	caaacgagcc	agccaggggt											2062
tcttttggtt	ataaatgggg	caattcgccc	tgtctcagag	ctgatgacct	caccgttggt											2122

ttttggatgg tgaattcatg ctgagaatth gcagatgcaa gctcctctcc taggtcttct 2182
 gaatgtcttg aaacatccca ggtcccaggt ctggtgcggt ttcccagag gagcggagt 2242
 gggtttgtct tctgtgtgcc tgtgtcctca tctgattcac ctgccatttg ctgagcctct 2302
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 tgcacgattt tttggaatct tcctcctgac tgtgaggtgg gtgttcattc atttctctca 2482
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 ttcattntc aggcnnccggg ccgcttacat cct 2575

<210> 372
 <211> 7393
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (118) .. (3012)

<400> 372
 taagcttgct tgtttcttttg gccgaagcgg cctacggctg cgagaagacg acagaagggg 60
 gacgtcaagg ccagcccttc ctcagctaata aagcggaaaa acaaaccctt ttcagac 117
 atg gag ctg aat tct agc tca gag gac tcc aaa ggg agc aag cgt gtc 165
 Met Glu Leu Asn Ser Ser Ser Glu Asp Ser Lys Gly Ser Lys Arg Val
 1 5 10 15
 cgt act aat tcc atg ggc tca gcc act ggc ccc ctt cct ggg aca aag 213
 Arg Thr Asn Ser Met Gly Ser Ala Thr Gly Pro Leu Pro Gly Thr Lys
 17 22 27 32
 gta gaa ccc act gtt ctg gac aga aac tgc ccc tcc ccc gtc cta att 261
 Val Glu Pro Thr Val Leu Asp Arg Asn Cys Pro Ser Pro Val Leu Ile
 33 38 43 48
 gac tgt ccc cac cca aac tgc aac aag aag tac aag cac atc aat gga 309
 Asp Cys Pro His Pro Asn Cys Asn Lys Lys Tyr Lys His Ile Asn Gly
 49 54 59 64
 ctt aag tac cac caa gct cat gcc cat aca gat gat gac agc aag ccg 357
 Leu Lys Tyr His Gln Ala His Ala His Thr Asp Asp Asp Ser Lys Pro
 65 70 75 80
 gaa gcg gat ggg gac agt gag tac gga gag gaa cct att ctc cat gca 405
 Glu Ala Asp Gly Asp Ser Glu Tyr Gly Glu Glu Pro Ile Leu His Ala
 81 86 91 96
 gat ctt ggg agc tgc aac ggt gca tct gtc tca caa aaa ggt tcc ttg 453

Asp	Leu	Gly	Ser	Cys	Asn	Gly	Ala	Ser	Val	Ser	Gln	Lys	Gly	Ser	Leu	
97					102					107					112	
tcc	cct	gcc	cgc	tca	gct	acc	ccc	aaa	gtt	cga	ctt	gta	gag	ccc	cat	501
Ser	Pro	Ala	Arg	Ser	Ala	Thr	Pro	Lys	Val	Arg	Leu	Val	Glu	Pro	His	
113					118					123					128	
agc	cct	tct	cct	tca	agc	aaa	ttc	agc	aca	aaa	ggc	ctc	tgt	aag	aaa	549
Ser	Pro	Ser	Pro	Ser	Ser	Lys	Phe	Ser	Thr	Lys	Gly	Leu	Cys	Lys	Lys	
129					134					139					144	
aag	ttg	agt	ggg	gaa	ggg	gac	aca	gac	ctt	ggg	gcc	tta	tcc	aat	gat	597
Lys	Leu	Ser	Gly	Glu	Gly	Asp	Thr	Asp	Leu	Gly	Ala	Leu	Ser	Asn	Asp	
145					150					155					160	
ggc	tct	gat	gat	gga	ccc	tca	gtg	atg	gat	gaa	aca	agc	aat	gat	gcc	645
Gly	Ser	Asp	Asp	Gly	Pro	Ser	Val	Met	Asp	Glu	Thr	Ser	Asn	Asp	Ala	
161					166					171					176	
ttt	gat	tct	tta	gaa	agg	aag	tgt	atg	gaa	aaa	gaa	aaa	tgt	aaa	aaa	693
Phe	Asp	Ser	Leu	Glu	Arg	Lys	Cys	Met	Glu	Lys	Glu	Lys	Cys	Lys	Lys	
177					182					187					192	
ccc	tct	agt	tta	aaa	cct	gaa	aag	att	cct	tcc	aag	agc	cta	aag	tca	741
Pro	Ser	Ser	Leu	Lys	Pro	Glu	Lys	Ile	Pro	Ser	Lys	Ser	Leu	Lys	Ser	
193					198					203					208	
gcc	cgt	ccc	att	gcc	cct	gcc	atc	ccc	cca	cag	caa	atc	tac	acc	ttc	789
Ala	Arg	Pro	Ile	Ala	Pro	Ala	Ile	Pro	Pro	Gln	Gln	Ile	Tyr	Thr	Phe	
209					214					219					224	
cag	aca	gcc	acc	ttc	aca	gca	gcg	agc	cca	ggc	tct	tcc	tca	ggc	ttg	837
Gln	Thr	Ala	Thr	Phe	Thr	Ala	Ala	Ser	Pro	Gly	Ser	Ser	Ser	Gly	Leu	
225					230					235					240	
acc	gcc	aca	gtg	gca	caa	gcc	atg	ccc	aac	agt	ccc	caa	ctc	aag	ccc	885
Thr	Ala	Thr	Val	Ala	Gln	Ala	Met	Pro	Asn	Ser	Pro	Gln	Leu	Lys	Pro	
241					246					251					256	
att	cag	ccc	aag	ccc	act	gtt	atg	gga	gaa	cct	ttc	aca	gtc	aac	cct	933
Ile	Gln	Pro	Lys	Pro	Thr	Val	Met	Gly	Glu	Pro	Phe	Thr	Val	Asn	Pro	
257					262					267					272	
gcc	ttg	act	cca	gcc	aag	gac	aag	aaa	aag	aaa	gac	aaa	aaa	aag	aag	981
Ala	Leu	Thr	Pro	Ala	Lys	Asp	Lys	Lys	Lys	Lys	Asp	Lys	Lys	Lys	Lys	
273					278					283					288	
gaa	tct	tca	aag	gaa	ctt	gaa	agt	cct	ctg	acc	cct	ggg	aag	gtg	tgt	1029
Glu	Ser	Ser	Lys	Glu	Leu	Glu	Ser	Pro	Leu	Thr	Pro	Gly	Lys	Val	Cys	
289					294					299					304	
cga	gca	gag	gaa	ggc	aaa	agc	cca	ttc	agg	gaa	tct	tca	gga	aat	ggg	1077
Arg	Ala	Glu	Glu	Gly	Lys	Ser	Pro	Phe	Arg	Glu	Ser	Ser	Gly	Asn	Gly	
305					310					315					320	
atg	aaa	atg	gag	ggg	ctc	cta	aat	ggc	tca	tca	gac	ccc	cac	caa	agc	1125
Met	Lys	Met	Glu	Gly	Leu	Leu	Asn	Gly	Ser	Ser	Asp	Pro	His	Gln	Ser	

321					326					331					336		
cga	ctg	gct	agc	atc	aag	gct	gaa	gcc	gac	aag	atc	tac	agt	ttc	acg	1173	
Arg	Leu	Ala	Ser	Ile	Lys	Ala	Glu	Ala	Asp	Lys	Ile	Tyr	Ser	Phe	Thr		
337					342					347					352		
gac	aat	gcc	ccc	agc	cct	tcc	att	gga	ggc	agt	agc	cgc	ctt	gaa	aac	1221	
Asp	Asn	Ala	Pro	Ser	Pro	Ser	Ile	Gly	Gly	Ser	Ser	Arg	Leu	Glu	Asn		
353					358					363					368		
act	acc	cct	act	cag	ccc	ctg	act	ccc	tta	cat	gtg	gtg	acc	cag	aat	1269	
Thr	Thr	Pro	Thr	Gln	Pro	Leu	Thr	Pro	Leu	His	Val	Val	Thr	Gln	Asn		
369					374					379					384		
gga	gct	gaa	gcc	agc	tca	gtc	aaa	acc	aac	agc	cct	gca	tac	tct	gac	1317	
Gly	Ala	Glu	Ala	Ser	Ser	Val	Lys	Thr	Asn	Ser	Pro	Ala	Tyr	Ser	Asp		
385					390					395					400		
atc	tct	gat	gct	ggg	gag	gat	ggg	gag	ggc	aag	gta	gac	agt	gtc	aaa	1365	
Ile	Ser	Asp	Ala	Gly	Glu	Asp	Gly	Glu	Gly	Lys	Val	Asp	Ser	Val	Lys		
401					406					411					416		
tca	aag	gac	gcc	gaa	cag	ttg	gtt	aaa	gaa	ggg	gct	aag	aaa	act	ctt	1413	
Ser	Lys	Asp	Ala	Glu	Gln	Leu	Val	Lys	Glu	Gly	Ala	Lys	Lys	Thr	Leu		
417					422					427					432		
ttt	ccc	cct	cag	cct	cag	agc	aaa	gac	tca	cca	tat	tac	caa	ggc	ttt	1461	
Phe	Pro	Pro	Gln	Pro	Gln	Ser	Lys	Asp	Ser	Pro	Tyr	Tyr	Gln	Gly	Phe		
433					438					443					448		
gag	agt	tac	tat	tct	cca	agt	tat	gca	cag	tcc	agc	cct	ggg	gct	ctg	1509	
Glu	Ser	Tyr	Tyr	Ser	Pro	Ser	Tyr	Ala	Gln	Ser	Ser	Pro	Gly	Ala	Leu		
449					454					459					464		
aac	ccc	agc	agc	cag	gca	gga	gtg	gag	agc	cag	gcc	ctg	aag	aca	aaa	1557	
Asn	Pro	Ser	Ser	Gln	Ala	Gly	Val	Glu	Ser	Gln	Ala	Leu	Lys	Thr	Lys		
465					470					475					480		
agg	gat	gag	gaa	cct	gag	agc	ata	gaa	ggg	aaa	gtg	aag	aac	gat	atc	1605	
Arg	Asp	Glu	Glu	Pro	Glu	Ser	Ile	Glu	Gly	Lys	Val	Lys	Asn	Asp	Ile		
481					486					491					496		
tgt	gaa	gaa	aag	aag	ccc	gag	ctg	agc	agt	tcc	agt	cag	cag	ccc	tcg	1653	
Cys	Glu	Glu	Lys	Lys	Pro	Glu	Leu	Ser	Ser	Ser	Ser	Gln	Gln	Pro	Ser		
497					502					507					512		
gtc	atc	cag	cag	cgt	ccc	aat	atg	tac	atg	cag	tcc	ctg	tac	tac	aac	1701	
Val	Ile	Gln	Gln	Arg	Pro	Asn	Met	Tyr	Met	Gln	Ser	Leu	Tyr	Tyr	Asn		
513					518					523					528		
cag	tat	gcc	tat	gta	ccc												

cag cag aaa cgc cag agc tta gag cag cag cag cgg gga gtg gac aag	1845
Gln Gln Lys Arg Gln Ser Leu Glu Gln Gln Gln Arg Gly Val Asp Lys	
561 566 571 576	
aag gca gag atg ggc ctg aag gag cgg gag gca gca ctc aag gaa gag	1893
Lys Ala Glu Met Gly Leu Lys Glu Arg Glu Ala Ala Leu Lys Glu Glu	
577 582 587 592	
tgg aag caa aag ccg tca att cca cca act ctc acc aag gcc ccc agc	1941
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Tyr Ser Phe Ser Pro Tyr Gly Ser Lys Val Ser Gly Gly Glu Asp Ala	
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Asp Lys Ala Arg Ala Ser Pro Ser Val Thr Cys Lys Ser Ser Ser Glu	
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Pro His Gly Tyr Cys Ser Pro Thr Ser Ala Ser Tyr Gly Lys Ala Leu	
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Asn Pro Tyr Gln Tyr Gln Tyr His Gly Val Asn Gly Ser Ala Gly Ser	
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Tyr Pro Ala Lys Ala Tyr Ala Asp Tyr Ser Tyr Ala Ser Ser Tyr His	
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Ala Leu Gln Arg Arg Phe Gln Lys Thr Gln Tyr Leu Ala Leu Pro Glu	
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Arg Ala Glu Leu Ala Ala Ser Leu Gly Leu Thr Gln Thr Gln Val Lys	
167 172 177 182	
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Ile Trp Phe Gln Asn Lys Arg Ser Lys Ile Lys Lys Ile Met Lys Asn	
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agataaaggt aaccgtgggg aaagcggccc ccagtgagc aaaggcggag gcaagaatag 480

agcaggcctg agggccatag gcgatgagaa taggcagttg aggggtgaaa aagaaaacaa 540

acaacaaca acaacaaacc ctgaagagta ctgaagattt agaagggact ggaaaggact 600

tgttgcgca atg gaa gaa tct gac tct gag aaa acg acg gag aaa gaa 648
Met Glu Glu Ser Asp Ser Glu Lys Thr Thr Glu Lys Glu
1 5 10

aat ctg ggg ccg aga atg gat cca cca cta ggg gaa ccg gaa gga tcg 696
Asn Leu Gly Pro Arg Met Asp Pro Pro Leu Gly Glu Pro Glu Gly Ser
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Leu Gly Trp Val Leu Pro Asn Thr Ala Met Lys Lys Lys Val Leu Leu
30 35 40 45

atg ggt aaa agt ggg tct ggt aag acc agc atg agg tct att atc ttt 792
Met Gly Lys Ser Gly Ser Gly Lys Thr Ser Met Arg Ser Ile Ile Phe
46 51 56 61

gca aat tat att gcc aga gac aca cgt cgc ctt ggc gca aca att gat 840
Ala Asn Tyr Ile Ala Arg Asp Thr Arg Arg Leu Gly Ala Thr Ile Asp
62 67 72 77

gta gaa cat tct cat gtt cga ttt ctg gga aac ctg gta ttg aac ctg 888
Val Glu His Ser His Val Arg Phe Leu Gly Asn Leu Val Leu Asn Leu
78 83 88 93

tgg gat tgt ggt ggg caa gac acc ttc atg gaa aat tat ttc act agc 936
Trp Asp Cys Gly Gly Gln Asp Thr Phe Met Glu Asn Tyr Phe Thr Ser
94 99 104 109

caa cgg gac aac atc ttc cga aat gtg gag gtt ctg att tat gtc ttt 984
Gln Arg Asp Asn Ile Phe Arg Asn Val Glu Val Leu Ile Tyr Val Phe
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gat gtg gag agc cgc gaa ctg gaa aag gac atg cac tat tac caa tca 1032
Asp Val Glu Ser Arg Glu Leu Glu Lys Asp Met His Tyr Tyr Gln Ser
126 131 136 141

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Cys Leu Glu Ala Ile Leu Gln Asn Ser Pro Asp Ala Lys Ile Phe Cys	
142 147 152 157	
ttg gta cac aaa atg gat ctg gta cag gag gat caa cgg gac ctg att	1128
Leu Val His Lys Met Asp Leu Val Gln Glu Asp Gln Arg Asp Leu Ile	
158 163 168 173	
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Phe Lys Glu Arg Glu Glu Asp Leu Arg Arg Leu Ser Arg Pro Leu Glu	
174 179 184 189	
tgt tct tgt ttc cga aca tct atc tgg gat gaa acc ctc tat aag gct	1224
Cys Ser Cys Phe Arg Thr Ser Ile Trp Asp Glu Thr Leu Tyr Lys Ala	
190 195 200 205	
tgg tcc agc ata gtt tat cag ctg att ccc aat gtt cag cag ctg gaa	1272
Trp Ser Ser Ile Val Tyr Gln Leu Ile Pro Asn Val Gln Gln Leu Glu	
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Met Asn Leu Arg Asn Phe Ala Glu Ile Ile Glu Ala Asp Glu Val Leu	
222 227 232 237	
ctt ttt gag aga gct act ttt ctg gta att tct cac tat cag tgt aaa	1368
Leu Phe Glu Arg Ala Thr Phe Leu Val Ile Ser His Tyr Gln Cys Lys	
238 243 248 253	
gag cag cgt gat gcc cat aga ttt gag aaa ata agc aac att att aag	1416
Glu Gln Arg Asp Ala His Arg Phe Glu Lys Ile Ser Asn Ile Ile Lys	
254 259 264 269	
cag ttc aag ctg agc tgc agc aag ctg gct gcc tct ttc cag agt atg	1464
Gln Phe Lys Leu Ser Cys Ser Lys Leu Ala Ala Ser Phe Gln Ser Met	
270 275 280 285	
gaa gtc agg aac tct aac ttc gct gct ttc att gac atc ttt aca tcc	1512
Glu Val Arg Asn Ser Asn Phe Ala Ala Phe Ile Asp Ile Phe Thr Ser	
286 291 296 301	
aac act tat gtg atg gtt gtg atg tct gat ccg tcc att cct tct gca	1560
Asn Thr Tyr Val Met Val Val Met Ser Asp Pro Ser Ile Pro Ser Ala	
302 307 312 317	
gct act ctg atc aac atc cgc aat gcc agg aaa cac ttt gaa aag ctg	1608
Ala Thr Leu Ile Asn Ile Arg Asn Ala Arg Lys His Phe Glu Lys Leu	
318 323 328 333	
gaa aga gtg gat gga cca aag cag tgt ctt ctc atg cgc taa acattga	1657
Glu Arg Val Asp Gly Pro Lys Gln Cys Leu Met Arg *	
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ggctctgaaa tggtgtgatg cttattgctt ctgtatttct tctctactcc ctagtcttaa	1777
tgtttaacct tgaatgctat taacttaaag agccattgag gagttagaag atgaattgtt	1837

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 ccccgccggc tgagtctccg agcggccggg ctcggaagcc acgagccagc tgaggcgctc 180
 tccgcttagt gcctacggca tgggtcagct ctttctgcca cctccgcctt cgcggtcctc 240
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 tcgggaacgaa cccctaacc acctctcttt tctgtcatt ctccaactct tactttgtac 360
 cacggaatca cttggcctta aagctagcca gctcgccgt gccttgaggc caggttcgag 420
 agataaaggt aaccgtgggg aaagcggccc ccagtgagg aaaggcggag gcaagaatag 480
 agcaggcctg agggccatag gcgatgagaa taggcagttg aggggtgaaa aagaaaacaa 540
 acaacaaca acaacaacc ctgaagagta ctgaagattt agaagggact ggaaaggact 600
 tgttgcgca atg gaa gaa tct gac tct gag aaa acg acg gag aaa gaa 648
 Met Glu Glu Ser Asp Ser Glu Lys Thr Thr Glu Lys Glu
 1 5 10

aat ctg ggg ccg aga atg gat cca cca cta ggg gaa ccg gaa gga tcg 696
 Asn Leu Gly Pro Arg Met Asp Pro Pro Leu Gly Glu Pro Glu Gly Ser
 14 19 24 29

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 Leu Gly Trp Val Leu Pro Asn Thr Ala Met Lys Lys Lys Val Arg Arg
 30 35 40 45

gtt aga tac gtc aaa acc atg aag aaa aag gtg ctg ttg atg ggt aaa 792
 Val Arg Tyr Val Lys Thr Met Lys Lys Lys Val Leu Leu Met Gly Lys
 46 51 56 61

agt ggg tct ggt aag acc agc atg agg tct att atc ttt gca aat tat	840
Ser Gly Ser Gly Lys Thr Ser Met Arg Ser Ile Ile Phe Ala Asn Tyr	
62 67 72 77	
att gcc aga gac aca cgt cgc ctt ggc gca aca att gat gta gaa cat	888
Ile Ala Arg Asp Thr Arg Arg Leu Gly Ala Thr Ile Asp Val Glu His	
78 83 88 93	
tct cat gtt cga ttt ctg gga aac ctg gta ttg aac ctg tgg gat tgt	936
Ser His Val Arg Phe Leu Gly Asn Leu Val Leu Asn Leu Trp Asp Cys	
94 99 104 109	
ggt ggg caa gac acc ttc atg gaa aat tat ttc act agc caa cgg gac	984
Gly Gly Gln Asp Thr Phe Met Glu Asn Tyr Phe Thr Ser Gln Arg Asp	
110 115 120 125	
aac atc ttc cga aat gtg gag gtt ctg att tat gtc ttt gat gtg gag	1032
Asn Ile Phe Arg Asn Val Glu Val Leu Ile Tyr Val Phe Asp Val Glu	
126 131 136 141	
agc cgc gaa ctg gaa aag gac atg cac tat tac caa tca tgc ctg gag	1080
Ser Arg Glu Leu Glu Lys Asp Met His Tyr Tyr Gln Ser Cys Leu Glu	
142 147 152 157	
gcc att ctg cag aat tct cca gat gcc aaa ata ttt tgc ttg gta cac	1128
Ala Ile Leu Gln Asn Ser Pro Asp Ala Lys Ile Phe Cys Leu Val His	
158 163 168 173	
aaa atg gat ctg gta cag gag gat caa cgg gac ctg att ttt aaa gag	1176
Lys Met Asp Leu Val Gln Glu Asp Gln Arg Asp Leu Ile Phe Lys Glu	
174 179 184 189	
cga gaa gaa gat ttg agg cgt ttg tct cgc cca ttg gaa tgt tct tgt	1224
Arg Glu Glu Asp Leu Arg Arg Leu Ser Arg Pro Leu Glu Cys Ser Cys	
190 195 200 205	
ttc cga aca tct atc tgg gat gaa acc ctc tat aag gct tgg tcc agc	1272
Phe Arg Thr Ser Ile Trp Asp Glu Thr Leu Tyr Lys Ala Trp Ser Ser	
206 211 216 221	
ata gtt tat cag ctg att ccc aat gtt cag cag ctg gaa atg aac cta	1320
Ile Val Tyr Gln Leu Ile Pro Asn Val Gln Gln Leu Glu Met Asn Leu	
222 227 232 237	
agg aat ttt gct gaa att atc gaa gct gat gaa gta ctt ctt ttt gag	1368
Arg Asn Phe Ala Glu Ile Ile Glu Ala Asp Glu Val Leu Leu Phe Glu	
238 243 248 253	
aga gct act ttt ctg gta att tct cac tat cag tgt aaa gag cag cgt	1416
Arg Ala Thr Phe Leu Val Ile Ser His Tyr Gln Cys Lys Glu Gln Arg	
254 259 264 269	
gat gcc cat aga ttt gag aaa ata agc aac att att aag cag ttc aag	1464
Asp Ala His Arg Phe Glu Lys Ile Ser Asn Ile Ile Lys Gln Phe Lys	
270 275 280 285	

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Leu Ser Cys Ser Lys Leu Ala Ala Ser Phe Gln Ser Met Glu Val Arg	
286 291 296 301	
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Asn Ser Asn Phe Ala Ala Phe Ile Asp Ile Phe Thr Ser Asn Thr Tyr	
302 307 312 317	
gtg atg gtt gtg atg tct gat ccg tcc att cct tct gca gct act ctg	1608
Val Met Val Val Met Ser Asp Pro Ser Ile Pro Ser Ala Ala Thr Leu	
318 323 328 333	
atc aac atc cgc aat gcc agg aaa cac ttt gaa aag ctg gaa aga gtg	1656
Ile Asn Ile Arg Asn Ala Arg Lys His Phe Glu Lys Leu Glu Arg Val	
334 339 344 349	
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Asp Gly Pro Lys Gln Cys Leu Leu Met Arg *	
350 355 360	
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gttgatgagc ttattgcttc tgtattttctt ctctactccc tagtcttaat gtttaacctt	1827
gaatgctatt aacttaaata gccattgagg agttagaaga tgaattgttc atgaagtcgg	1887
tgttacataa aagtaggtga tatgtaagtt ttctgataac aagggttctaa tagtggttaa	1947
atgtactggt aacctgggtc caatagttgt gtttgcccaa gcctttctcg gcacatctt	2007
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gcggccatag agaatgaact gcacgagtcg ctccaactcc tgcagagctg agccggaggg	180
aatccggaag gacacgctga acaggaacag aa atg aat aaa agt cgc tgg cag	233
Met Asn Lys Ser Arg Trp Gln	
1 5	

agt Ser 8	aga Arg	aga Arg	cga Arg	cat His	ggg Gly 13	aga Arg	aga Arg	agc Ser	cac His	cag Gln 18	cag Gln	aac Asn	cct Pro	tgg Trp	ttc Phe 23	281
aga Arg 24	ctc Leu	cgt Arg	gat Asp	tct Ser	gaa Glu 29	gac Asp	agg Arg	tct Ser	gac Asp	tcc Ser 34	cgg Arg	gca Ala	gca Ala	cag Gln	ccc Pro 39	329
gct Ala 40	cac His	gat Asp	tcc Ser	ggc Gly	cac His 45	ggt Gly	gat Asp	gac Asp	gag Glu	tct Ser 50	ccg Pro	tca Ser	acc Thr	tcg Ser	tct Ser 55	377
ggc Gly 56	aca Thr	gct Ala	ggg Gly	acc Thr	tcc Ser 61	tct Ser	gtg Val	cca Pro	gag Glu	cta Leu 66	cct Pro	ggg Gly	ttt Phe	tac Tyr	ttt Phe 71	425
gac Asp 72	cct Pro	gaa Glu	aag Lys	aaa Lys	cgc Arg 77	tac Tyr	ttc Phe	cgc Arg	ttg Leu	ctc Leu 82	cct Pro	gga Gly	cat His	aac Asn	aac Asn 87	473
tgc Cys 88	aac Asn	ccc Pro	ctg Leu	acg Thr	aaa Lys 93	gag Glu	agc Ser	atc Ile	cgg Arg	cag Gln 98	aag Lys	gag Glu	atg Met	gag Glu	agc Ser 103	521
aag Lys 104	aga Arg	ctg Leu	cgg Arg	ctg Leu	ctc Leu 109	cag Gln	gaa Glu	gaa Glu	gac Asp	aga Arg 114	cgg Arg	aaa Lys	aag Lys	att Ile	gcc Ala 119	569
agg Arg 120	atg Met	gga Gly	ttt Phe	aat Asn	gca Ala 125	tct Ser	tcc Ser	atg Met	cta Leu	cga Arg 130	aaa Lys	agc Ser	cag Gln	ctg Leu	ggt Gly 135	617
ttt Phe 136	ctc Leu	aac Asn	gtc Val	acc Thr	aat Asn 141	tac Tyr	tgc Cys	cat His	tta Leu	gcc Ala 146	cac His	gag Glu	ctg Leu	cgt Arg	ctc Leu 151	665
agc Ser 152	tgc Cys	atg Met	gag Glu	agg Arg	aaa Lys 157	aag Lys	gtc Val	cag Gln	att Ile	cga Arg 162	agc Ser	atg Met	gat Asp	ccc Pro	tcc Ser 167	713
gcc Ala 168	ttg Leu	gca Ala	agc Ser	gac Asp	cga Arg 173	ttt Phe	aac Asn	ctc Leu	ata Ile	ctg Leu 178	gca Ala	gat Asp	acc Thr	aac Asn	agt Ser 183	761
gac Asp 184	cgg Arg	ctc Leu	ttc Phe	aca Thr	gtg Val 189	aac Asn	gat Asp	gtt Val	aca Thr	gtt Val 194	gga Gly	ggc Gly	tcc Ser	aag Lys	tat Tyr 199	809
ggt Gly 200	atc Ile	atc Ile	aac Asn	ctg Leu	caa Gln 205	agt Ser	ctg Leu	aag Lys	acc Thr	cct Pro 210	acg Thr	ctc Leu	aag Lys	gtg Val	ttc Phe 215	857
atg Met 216	cac His	gaa Glu	aac Asn	ctc Leu	tac Tyr 221	ttc Phe	acc Thr	aac Asn	cgg Arg	aag Lys 226	gtg Val	aga Arg	ttc Phe	ggt Gly	gtg Val 231	905
ctg	ggc	ctc	gct	gaa	tca	ctt	gga	ttc	cca	cat	tct	gct	atg	cct	cat	953

Leu Gly Leu Ala Glu Ser Leu Gly Phe Pro His Ser Ala Met Pro His	
232 237 242 247	
ggg act cgc agg act cca ggc tgt gcc acc ctg ctc cca gca tca ctg	1001
Gly Thr Arg Arg Thr Pro Gly Cys Ala Thr Leu Leu Pro Ala Ser Leu	
248 253 258 263	
ttc gtc aat agt cac cca gca gga ata gac cgg cct ggc atg ctc tgc	1049
Phe Val Asn Ser His Pro Ala Gly Ile Asp Arg Pro Gly Met Leu Cys	
264 269 274 279	
agt ttc cgg atc cct ggt gcc tgg tcc tgt gcc tgg tcc ctg aat atc	1097
Ser Phe Arg Ile Pro Gly Ala Trp Ser Cys Ala Trp Ser Leu Asn Ile	
280 285 290 295	
caa gca aat aac tgc ttc agt aca ggc ttg tct cgg cgg gtc ctg ttg	1145
Gln Ala Asn Asn Cys Phe Ser Thr Gly Leu Ser Arg Arg Val Leu Leu	
296 301 306 311	
acc aac gtg gtg acg gga cac cgg cag tcc ttt ggg acc aac agt gat	1193
Thr Asn Val Val Thr Gly His Arg Gln Ser Phe Gly Thr Asn Ser Asp	
312 317 322 327	
gtc ttg gcc cag cag ttt gct ctc atg gct cct ctg ctg ttt aat ggc	1241
Val Leu Ala Gln Gln Phe Ala Leu Met Ala Pro Leu Leu Phe Asn Gly	
328 333 338 343	
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Cys Arg Ser Gly Glu Ile Phe Ala Ile Asp Leu Arg Cys Gly Asn Gln	
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ggc aag gga tgg aag gcc acc cgc ctg ttt cat gat tca gca gtg acc	1337
Gly Lys Gly Trp Lys Ala Thr Arg Leu Phe His Asp Ser Ala Val Thr	
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Ser Val Arg Ile Leu Gln Asp Glu Gln Tyr Leu Met Ala Ser Asp Met	
376 381 386 391	
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Ala Gly Lys Ile Lys Leu Trp Asp Leu Arg Thr Thr Lys Cys Val Arg	
392 397 402 407	
cag tac gaa ggc cac gtg aat gag tac gcc tac ctg ccc ctg cat gtg	1481
Gln Tyr Glu Gly His Val Asn Glu Tyr Ala Tyr Leu Pro Leu His Val	
408 413 418 423	
cac gag gaa gaa gga atc ctg gtg gca gtg ggc cag gac tgc tac acg	1529
His Glu Glu Glu Gly Ile Leu Val Ala Val Gly Gln Asp Cys Tyr Thr	
424 429 434 439	
aga atc tgg agc ctc cac gat gcc cgc cta ctg aga acc ata ccc tcc	1577
Arg Ile Trp Ser Leu His Asp Ala Arg Leu Leu Arg Thr Ile Pro Ser	
440 445 450 455	
ccg tac cct gcc tcc aag gcc gac att ccc agt gtg gcc ttc tcg tcg	1625
Pro Tyr Pro Ala Ser Lys Ala Asp Ile Pro Ser Val Ala Phe Ser Ser	

456	461	466	471	
cgg ctg ggg ggc tcc	cgg ggc gcg ccg	ggg ctg ctc atg gct gtc ggg	1673	
Arg Leu Gly Gly Ser	Arg Gly Ala Pro	Gly Leu Leu Met Ala Val Gly		
472	477	482	487	
cag gac ctt tac tgt	tac tcc tac agc taa	t tctgcagggc acagcccaga	1724	
Gln Asp Leu Tyr Cys	Tyr Ser Tyr Ser *			
488	493			
gccatgtgga tttgacttac	gggagtaaag cgtaactttt	tactgcatct aatgaggggtg	1784	
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His Leu Leu Val Arg	Arg Gly Ser His	Arg Ile Phe Ser Ser Pro Leu
		101

8	13	18	23	
aat cat atc tac tta cac aag cag tca agc agt caa caa aga aga aat				149
Asn His Ile Tyr Leu His Lys Gln Ser Ser Ser Gln Gln Arg Arg Asn				
24	29	34	39	
ttc ttt ttt cgg aga caa aga gat att tca cac agt ata gtt ttg ccg				197
Phe Phe Phe Arg Arg Gln Arg Asp Ile Ser His Ser Ile Val Leu Pro				
40	45	50	55	
gct gca gtt tct tca gct cat ccg gtt cct aag cac ata aag aag cca				245
Ala Ala Val Ser Ser Ala His Pro Val Pro Lys His Ile Lys Lys Pro				
56	61	66	71	
gac tat gtg acg aca ggc att gta cca gac tgg gga gac agc ata gaa				293
Asp Tyr Val Thr Thr Gly Ile Val Pro Asp Trp Gly Asp Ser Ile Glu				
72	77	82	87	
gtt aag aat gaa gat cag att caa ggg ctt cat cag gct tgt cag ctg				341
Val Lys Asn Glu Asp Gln Ile Gln Gly Leu His Gln Ala Cys Gln Leu				
88	93	98	103	
gcc cgc cac gtc ctc ctc ttg gct ggg aag agt tta aag gtt gac atg				389
Ala Arg His Val Leu Leu Leu Ala Gly Lys Ser Leu Lys Val Asp Met				
104	109	114	119	
aca act gaa gag ata gat gct ctt gtt cat cgg gaa atc atc agt cat				437
Thr Thr Glu Glu Ile Asp Ala Leu Val His Arg Glu Ile Ile Ser His				
120	125	130	135	
aat gcc tat ccc tca cct cta ggc tat gga ggt ttt cca aaa tct gtt				485
Asn Ala Tyr Pro Ser Pro Leu Gly Tyr Gly Gly Phe Pro Lys Ser Val				
136	141	146	151	
tgt acc tct gta aac aac gtg ctc tgt cat ggt att cct gac agt cga				533
Cys Thr Ser Val Asn Asn Val Leu Cys His Gly Ile Pro Asp Ser Arg				
152	157	162	167	
cct ctt cag gat gga gat att atc aac att gat gtc aca gtc tat tac				581
Pro Leu Gln Asp Gly Asp Ile Ile Asn Ile Asp Val Thr Val Tyr Tyr				
168	173	178	183	
aat ggc tac cat gga gac acc tct gaa aca ttt ttg gtg ggc aat gtg				629
Asn Gly Tyr His Gly Asp Thr Ser Glu Thr Phe Leu Val Gly Asn Val				
184	189	194	199	
gac gaa tgt ggt aaa aag tta gtg gag gtt gcc agg agg tgt aga gat				677
Asp Glu Cys Gly Lys Lys Leu Val Glu Val Ala Arg Arg Cys Arg Asp				
200	205	210	215	
gaa gca att gca gct tgc aga gca ggg gct ccc ttc tct gta att gga				725
Glu Ala Ile Ala Ala Cys Arg Ala Gly Ala Pro Phe Ser Val Ile Gly				
216	221	226	231	
aac aca atc agc cac ata act cat cag aat ggt ttt caa gtc tgt cca				773
Asn Thr Ile Ser His Ile Thr His Gln Asn Gly Phe Gln Val Cys Pro				
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Ser Phe Val Arg Leu Trp Val Asn Gln Glu Asp Glu Val Glu Glu Gly	
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Cys Leu Gly Arg Pro Leu Gln Asn Arg Asp Gln Met Arg Ala Asn Val	
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Cys Ala His Ala Ala Gly Val Leu Met Glu Pro Asp Asp Trp Pro Tyr				
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gtg gtg aac att aca tgc ttt cga cat aag gtc aac ccc aac gtg aag				2826
Val Val Asn Ile Thr Cys Phe Arg His Lys Val Asn Pro Asn Val Lys				
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tcc aag gct tgc gag aag gtc att tcc gtg ggt caa acg gtc atc acg				2874
Ser Lys Ala Cys Glu Lys Val Ile Ser Val Gly Gln Thr Val Ile Thr				
872	877	882	887	
aag cat cgg aac acc cgg tat tac agt tgc aga gtg atg gct gtg aca				2922
Lys His Arg Asn Thr Arg Tyr Tyr Ser Cys Arg Val Met Ala Val Thr				
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tcg cag acc ttc tat gag gtc atg ttt gat gat ggc tcc ttt agc aga				2970
Ser Gln Thr Phe Tyr Glu Val Met Phe Asp Asp Gly Ser Phe Ser Arg				
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gac aca ttt cct gag gat atc gtg agc cga gac tgt ctg aag ctg ggc				3018
Asp Thr Phe Pro Glu Asp Ile Val Ser Arg Asp Cys Leu Lys Leu Gly				
920	925	930	935	
cca cct gct gag gga gaa gtc gtc caa gtc aag tgg ccc gat ggc aaa				3066
Pro Pro Ala Glu Gly Glu Val Val Gln Val Lys Trp Pro Asp Gly Lys				
936	941	946	951	
ctc tat gga gca aaa tat ttt gga tca aat att gcc cac atg tac cag				3114
Leu Tyr Gly Ala Lys Tyr Phe Gly Ser Asn Ile Ala His Met Tyr Gln				
952	957	962	967	
gtt gag ttt gaa gat gga tcc cag ata gca atg aag aga gag gac atc				3162
Val Glu Phe Glu Asp Gly Ser Gln Ile Ala Met Lys Arg Glu Asp Ile				
968	973	978	983	
tac act tta gat gaa gag tta ccc aag aga gtg aaa gct cga ttt gta				3210
Tyr Thr Leu Asp Glu Glu Leu Pro Lys Arg Val Lys Ala Arg Phe Val				
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Ser Ala Gly Arg Cys His Leu Gly Thr Cys Gln Val Asn Ser Leu Ser				
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Met Gln Leu Thr Arg Cys Cys Phe Val Phe Leu Val Gln Gly Ser Leu	
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Tyr Leu Val Ile Cys Gly Gln Asp Asp Gly Pro Pro Gly Ser Glu Asp	
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Pro Glu Arg Asp Asp His Glu Gly Gln Pro Arg Pro Arg Val Pro Arg	
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Lys Arg Gly His Ile Ser Pro Lys Ser Arg Pro Met Ala Asn Ser Thr	
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Leu Leu Gly Leu Leu Ala Pro Pro Gly Glu Ala Trp Gly Ile Leu Gly	
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cag ccc ccc aac cgc ccg aac cac agc ccc cca ccc tca gcc aag gtg	408
Gln Pro Pro Asn Arg Pro Asn His Ser Pro Pro Pro Ser Ala Lys Val	
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Lys Lys Ile Phe Gly Trp Gly Asp Phe Tyr Ser Asn Ile Lys Thr Val	
97 102 107 112	
gcc ctg aac ctg ctc gtc aca ggg aag att gtg gac cat ggc aat ggg	504
Ala Leu Asn Leu Leu Val Thr Gly Lys Ile Val Asp His Gly Asn Gly	
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acc ttc agc gtc cac ttc caa cac aat gcc aca ggc cag gga aac atc	552
Thr Phe Ser Val His Phe Gln His Asn Ala Thr Gly Gln Gly Asn Ile	
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Ser Ile Ser Leu Val Pro Pro Ser Lys Ala Val Glu Phe His Gln Glu	
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Gln Gln Ile Phe Ile Glu Ala Lys Ala Ser Lys Ile Phe Asn Cys Arg	
161 166 171 176	
atg gag tgg gag aag gta gaa cgg ggc cgc cgg acc tcg ctt tgc acc	696
Met Glu Trp Glu Lys Val Glu Arg Gly Arg Arg Thr Ser Leu Cys Thr	
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His Asp Pro Ala Lys Ile Cys Ser Arg Asp His Ala Gln Ser Ser Ala	
193 198 203 208	
acc tgg agc tgc tcc cag ccc ttc aaa gtc gtc tgt gtc tac atc gcc	792
Thr Trp Ser Cys Ser Gln Pro Phe Lys Val Val Cys Val Tyr Ile Ala	
209 214 219 224	

Leu Pro His Phe Gly Glu His Ser Ser Arg Val Val Gln Glu Leu Leu	
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Glu His Gly Val Cys Glu Glu Val Glu Arg Val Arg Arg Ser Glu Arg	
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Tyr Gln Thr Met Lys Leu Phe Thr Gln Ile Phe Gly Val Gly Val Lys	
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act gct gac cgg tgg tac cgg gaa gga ctg cga acc tta gat gac ctc	940
Thr Ala Asp Arg Trp Tyr Arg Glu Gly Leu Arg Thr Leu Asp Asp Leu	
250 255 260 265	
cga gag cag ccc cag aaa cta acc caa cag cag aaa gcg ggt gag ccc	988
Arg Glu Gln Pro Gln Lys Leu Thr Gln Gln Gln Lys Ala Gly Glu Pro	
266 271 276 281	
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Ser Arg Glu Ala Gly Pro Trp Ala Ser Leu Asn Cys Thr Leu Asp Pro	
282 287 292 297	
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Ser Ala Ser Thr Pro *	
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Glu Ser Leu Ala Asp Leu Thr Asp His Arg Ala His Arg Cys Pro Gly
17 22 27 32

gat ggt gat gac gac cca caa ctc tcc tgg gtg gcc tcg tct ccc tcc 144
Asp Gly Asp Asp Asp Pro Gln Leu Ser Trp Val Ala Ser Ser Pro Ser
33 38 43 48

agc aag gat gtt gcg tca ccc acg cag atg atc gga gat ggt tgt gac 192
Ser Lys Asp Val Ala Ser Pro Thr Gln Met Ile Gly Asp Gly Cys Asp
49 54 59 64

ctc ggc ctc ggc gag gag gaa ggg ggc acg ggc ctg cca tac cct tgc 240
Leu Gly Leu Gly Glu Glu Glu Gly Gly Thr Gly Leu Pro Tyr Pro Cys
65 70 75 80

cag ttc tgc gac aag tcc ttc atc cgc ttg agc tac ttg aag agg cac 288
Gln Phe Cys Asp Lys Ser Phe Ile Arg Leu Ser Tyr Leu Lys Arg His
81 86 91 96

gag cag atc cac agc gac aag ctg ccg ttc aag tgc acc tac tgc agc 336
Glu Gln Ile His Ser Asp Lys Leu Pro Phe Lys Cys Thr Tyr Cys Ser
97 102 107 112

cgc ctc ttc aag cac aag agg agc cgt gac cgg cac atc aag ctg cat 384
Arg Leu Phe Lys His Lys Arg Ser Arg Asp Arg His Ile Lys Leu His
113 118 123 128

acg ggc gac aag aag tat cac tgc cac gag tgc gag gca gcc ttc tcc 432
Thr Gly Asp Lys Lys Tyr His Cys His Glu Cys Glu Ala Ala Phe Ser
129 134 139 144

cgc agc gac cac ctc aag atc cac ctg aag acc cac agc tcc agc aag 480
Arg Ser Asp His Leu Lys Ile His Leu Lys Thr His Ser Ser Ser Lys
145 150 155 160

ccc ttc aag tgc act gtg tgc aag cgc ggc ttc tcc tcc acc agc tcg 528
Pro Phe Lys Cys Thr Val Cys Lys Arg Gly Phe Ser Ser Thr Ser Ser
161 166 171 176

ctg cag agc cac atg cag gcc cac aaa aag aac aag gag cat ctg gcc 576
Leu Gln Ser His Met Gln Ala His Lys Lys Asn Lys Glu His Leu Ala
177 182 187 192

aag tcg gag aag gaa gcc aag aag gac gac ttc atg tgc gac tac tgc 624
Lys Ser Glu Lys Glu Ala Lys Lys Asp Asp Phe Met Cys Asp Tyr Cys

193	198	203	208	
gag gac acc ttc agc cag acg gag gag ctg gag aag cac gtg ctc acc				672
Glu Asp Thr Phe Ser Gln Thr Glu Glu Leu Glu Lys His Val Leu Thr				
209	214	219	224	
cgc cac ccg cag ctg tcc gag aag gcg gac ctg cag tgc att cac tgc				720
Arg His Pro Gln Leu Ser Glu Lys Ala Asp Leu Gln Cys Ile His Cys				
225	230	235	240	
cct gag gtc ttc gtc gac gag aac aca ctg ctc gcc cat atc cac caa				768
Pro Glu Val Phe Val Asp Glu Asn Thr Leu Leu Ala His Ile His Gln				
241	246	251	256	
gcc cac gcc aac cag aaa cac aag tgc ccc atg tgc cct gag cag ttc				816
Ala His Ala Asn Gln Lys His Lys Cys Pro Met Cys Pro Glu Gln Phe				
257	262	267	272	
tcc tca gtg gaa ggt gtc tac tgc cac ctg gac agc cac cgg cag ccc				864
Ser Ser Val Glu Gly Val Tyr Cys His Leu Asp Ser His Arg Gln Pro				
273	278	283	288	
gac tcc agc aac cac agt gtc agt ccc gac cct gta ctg ggc agc gtg				912
Asp Ser Ser Asn His Ser Val Ser Pro Asp Pro Val Leu Gly Ser Val				
289	294	299	304	
gcc tcc atg agc agc gcc aca ccc gac tcc agc gcc tct gtg gag cgt				960
Ala Ser Met Ser Ser Ala Thr Pro Asp Ser Ser Ala Ser Val Glu Arg				
305	310	315	320	
ggc tcc acc ccg gac tcc acc ttg aag ccg ctg cgg ggg cag aag aag				1008
Gly Ser Thr Pro Asp Ser Thr Leu Lys Pro Leu Arg Gly Gln Lys Lys				
321	326	331	336	
atg cgg gat gac ggg cag ggc tgg acc aag gtg gtc tat agc tgc ccc				1056
Met Arg Asp Asp Gly Gln Gly Trp Thr Lys Val Val Tyr Ser Cys Pro				
337	342	347	352	
tat tgt tcc aag cgg gac ttt aac agc ctg gcc gtg ctg gag atc cac				1104
Tyr Cys Ser Lys Arg Asp Phe Asn Ser Leu Ala Val Leu Glu Ile His				
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ctg aag acc atc cac gcg gac aag ccc cag cag agc cac aca tgt cag				1152
Leu Lys Thr Ile His Ala Asp Lys Pro Gln Gln Ser His Thr Cys Gln				
369	374	379	384	
atc tgc ctg gac tcc atg ccc acc ctc tac aac ctc aac gag cac gtt				1200
Ile Cys Leu Asp Ser Met Pro Thr Leu Tyr Asn Leu Asn Glu His Val				
385	390	395	400	
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Arg Lys Leu His Lys Asn His Ala Tyr Pro Val Met Gln Phe Gly Asn				
401	406	411	416	
atc tct gcc ttc cac tgc aac tac tgc ccc gag atg ttc gcc gac atc				1296
Ile Ser Ala Phe His Cys Asn Tyr Cys Pro Glu Met Phe Ala Asp Ile				
417	422	427	432	

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Asn Ser Leu Gln Glu His Ile Arg Val Ser His Cys Gly Pro Asn Ala	
433 438 443 448	
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Asn Pro Ser Asp Gly Asn Asn Ala Phe Phe Cys Asn Gln Cys Ser Met	
449 454 459 464	
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Gly Phe Leu Thr Glu Ser Ser Leu Thr Glu His Ile Gln Gln Ala His	
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Cys Ser Val Gly Ser Ala Lys Leu Glu Ser Pro Val Val Gln Pro Thr	
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cag tcc ttc atg gag gtc tat tcc tgc ccc tac tgc acc aac tcc ccc	1536
Gln Ser Phe Met Glu Val Tyr Ser Cys Pro Tyr Cys Thr Asn Ser Pro	
497 502 507 512	
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Ile Phe Gly Ser Ile Leu Lys Leu Thr Lys His Ile Lys Glu Asn His	
513 518 523 528	
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Lys Asn Ile Pro Leu Ala His Ser Lys Lys Ser Lys Ala Glu Gln Ser	
529 534 539 544	
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Pro Val Ser Ser Asp Val Glu Val Ser Ser Pro Lys Arg Gln Arg Leu	
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Ser Ala Ser Ala Asn Ser Ile Ser Asn Gly Glu Tyr Pro Cys Asn Gln	
561 566 571 576	
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Cys Asp Leu Lys Phe Ser Asn Phe Glu Ser Phe Gln Thr His Leu Lys	
577 582 587 592	
ctg cac ctg gag ctg ctg ctg cgg aag caa gcg tgc ccc cag tgc aaa	1824
Leu His Leu Glu Leu Leu Leu Arg Lys Gln Ala Cys Pro Gln Cys Lys	
593 598 603 608	
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Glu Asp Phe Asp Ser Gln Glu Ser Leu Leu Gln His Leu Thr Val His	
609 614 619 624	
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Tyr Met Thr Thr Ser Thr His Tyr Val Cys Glu Ser Cys Asp Lys Gln	
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Phe Ser Ser Val Asp Asp Leu Gln Lys His Leu Leu Asp Met His Thr	
641 646 651 656	

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Phe Val Leu Tyr His Cys Thr Leu Cys Gln Glu Val Phe Asp Ser Lys	
657 662 667 672	
gtg tcc atc cag gtg cac ctg gcg gtg aag cac agc aat gag aag aag	2064
Val Ser Ile Gln Val His Leu Ala Val Lys His Ser Asn Glu Lys Lys	
673 678 683 688	
atg tac cgc tgc acg gcc tgc aac tgg gac ttc cgc aag gag gct gac	2112
Met Tyr Arg Cys Thr Ala Cys Asn Trp Asp Phe Arg Lys Glu Ala Asp	
689 694 699 704	
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Leu Gln Val His Val Lys His Ser His Leu Gly Asn Pro Ala Lys Ala	
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His Lys Cys Ile Phe Cys Gly Glu Thr Phe Ser Thr Glu Val Glu Leu	
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Gln Cys His Ile Thr Thr His Ser Lys Lys Tyr Asn Cys Lys Phe Cys	
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Ser Lys Ala Phe His Ala Ile Ile Leu Leu Glu Lys His Leu Arg Glu	
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Lys His Cys Val Phe Asp Ala Ala Thr Glu Asn Gly Thr Ala Asn Gly	
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Met Leu Leu Lys Asn Pro Glu Ala Pro Asn Ser His Glu Ala Ser Glu	
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Ala Ala Tyr Thr Met Glu Val Leu Leu Gln Asn His Arg Leu Arg Asp	
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His Asn Ile Arg Pro Gly Glu Asp Asp Gly Ser Arg Lys Lys Ala Glu	
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Phe Ile Lys Gly Ser His Lys Cys Asn Val Cys Ser Arg Thr Phe Phe	
865 870 875 880	
tcg gag aac ggg cta cgg gag cac ctg cag acg cac cgg ggc cct gcc	2688

Ser	Glu	Asn	Gly	Leu	Arg	Glu	His	Leu	Gln	Thr	His	Arg	Gly	Pro	Ala		
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Lys	His	Tyr	Met	Cys	Pro	Ile	Cys	Gly	Glu	Arg	Phe	Pro	Ser	Leu	Leu		
897					902					907					912		
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Thr	Leu	Thr	Glu	His	Lys	Val	Thr	His	Ser	Lys	Ser	Leu	Asp	Thr	Gly		
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cgc	tgt	gtg	gtc	tgc	atg	cag	aca	gtc	act	tcc	acg	ctt	gag	ctc	aag	2928	
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atc	cat	ggc	acc	ttc	cac	atg	cag	aag	ctg	gcg	ggc	agc	tca	gcg	gcg	2976	
Ile	His	Gly	Thr	Phe	His	Met	Gln	Lys	Leu	Ala	Gly	Ser	Ser	Ala	Ala		
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Ser	Ser	Pro	Asn	Gly	Gln	Gly	Leu	Gln	Lys	Leu	Tyr	Lys	Cys	Ala	Leu		
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1009					1014					1019					1024		
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Glu	Asp	Leu	Glu	Ser	His	Met	Gln	Val	Asp	His	Arg	Asp	Leu	Thr	Pro		
1073					1078					1083					1088		
gag	acc	agt	ggg	ccc	cgg	aaa	ggc	acc	cag	aca	tcg	cca	gtg	ccc	cgg	3312	
Glu	Thr	Ser	Gly	Pro	Arg	Lys	Gly	Thr	Gln	Thr	Ser	Pro	Val	Pro	Arg		
1089					1094					1099					1104		
aaa	aag	aca	tac	cag	tgc	atc	aag	tgc	cag	atg	acc	ttc	gag	aac	gag	3360	
Lys	Lys	Thr	Tyr	Gln	Cys	Ile	Lys	Cys	Gln	Met	Thr	Phe	Glu	Asn	Glu		

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Arg Glu Ile Gln Ile His Val Ala Asn His Met Ile Glu Glu Gly Ile				
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Asn His Glu Cys Lys Leu Cys Asn Gln Met Phe Asp Ser Pro Ala Lys				
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Leu Leu Cys His Leu Ile Glu His Ser Phe Glu Gly Met Gly Gly Thr				
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Phe Lys Cys Pro Val Cys Phe Thr Val Phe Val Gln Ala Asn Lys Leu				
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Gln Gln His Ile Phe Ala Val His Gly Gln Glu Asp Lys Ile Tyr Asp				
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Cys Ser Gln Cys Pro Gln Lys Phe Phe Phe Gln Thr Glu Leu Gln Asn				
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His Thr Met Ser Gln His Ala Gln *				
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aagcagctgg aaatgaatat taatggcaga gattaaaagt attccatgct cagtattttt				3880
tattgtcctg ctacagctag tgtgctttta gactttccgc cgcagactac atttctagag				3940
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gagcccagga gcagaggaag tagagagaga gacaac  atg tta cat ctg cac cat      234
                                         Met Leu His Leu His His
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tct tgt ttg tgt ttc agg agc tgg ctg cca gcg atg ctc gct gta ctg      282
Ser Cys Leu Cys Phe Arg Ser Trp Leu Pro Ala Met Leu Ala Val Leu
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cta agt ttg gca cca tca gct tcc agc gac att tcc gcc tcc cga ccg      330
Leu Ser Leu Ala Pro Ser Ala Ser Ser Asp Ile Ser Ala Ser Arg Pro
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aac atc ctt ctt ctg atg gcg gac gac ctt ggc att ggg gac att ggc      378
Asn Ile Leu Leu Leu Met Ala Asp Asp Leu Gly Ile Gly Asp Ile Gly
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tgc tat ggc aac aac acc atg agg act ccg aat att gac cgc ctt gca      426
Cys Tyr Gly Asn Asn Thr Met Arg Thr Pro Asn Ile Asp Arg Leu Ala
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gag gac ggc gtg aag ctg acc caa cac atc tct gcc gca tct ttg tgc      474
Glu Asp Gly Val Lys Leu Thr Gln His Ile Ser Ala Ala Ser Leu Cys
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acc cca agc aga gcc gcc ttc ctc acg ggc aga tac cct gtg cga tca      522
Thr Pro Ser Arg Ala Ala Phe Leu Thr Gly Arg Tyr Pro Val Arg Ser
  87                               92                               97                               102

ggg atg gtt tcc agc att ggt tac cgt gtt ctt cag tgg acc gga gca      570
Gly Met Val Ser Ser Ile Gly Tyr Arg Val Leu Gln Trp Thr Gly Ala
  103                               108                               113                               118

tct gga ggt ctt cca aca aat gag aca act ttt gca aaa ata ctg gaa      618
Ser Gly Gly Leu Pro Thr Asn Glu Thr Thr Phe Ala Lys Ile Leu Glu
  119                               124                               129                               134

gag aaa ggc tat gcc act gga ctc att gga aaa tgg cat ctg ggt ctc      666
Glu Lys Gly Tyr Ala Thr Gly Leu Ile Gly Lys Trp His Leu Gly Leu
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aac tgt gag tca gcc agt gat / cat tgc cac cac cct ctc cat cat ggc      714
Asn Cys Glu Ser Ala Ser Asp His Cys His His Pro Leu His His Gly
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Phe Leu Phe Gln Val Leu Ala Leu Val Ala Leu Thr Leu Val Ala Gly	
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Lys Leu Thr His Leu Ile Pro Val Ser Trp Met Pro Val Ile Trp Ser	
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Ala Leu Ser Ala Val Leu Leu Leu Ala Ser Ser Tyr Phe Val Gly Ala	
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Leu Ile Val His Ala Asp Cys Phe Leu Met Arg Asn His Thr Ile Thr	
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Val Ala Ser Phe Leu Lys Arg Asn Lys His Gly Pro Phe Leu Leu Phe	
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Val Ser Phe Leu His Val His Ile Pro Leu Ile Thr Met Glu Asn Phe	
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Asp Trp Met Val Gly Arg Ile Leu Asp Thr Leu Asp Val Glu Gly Leu	
327 332 337 342	
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Lys Gly Gly Lys Gly Met Gly Gly Trp Glu Gly Gly Ile Arg Val Pro	
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Glu Pro Thr Ser Leu Met Asp Val Phe Pro Thr Val Gly Arg Leu Ala	
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Gly Ser Glu Val Pro Gln Asp Arg Val Ile Asp Gly Gln Asp Leu Leu	
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Pro Leu Leu Leu Gly Thr Ala Gln His Ser Asp His Glu Phe Leu Met	
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His Tyr Cys Glu Arg Phe Leu His Ala Ala Arg Trp His Gln Arg Asp	
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Arg Gly Thr Met Trp Lys Val His Phe Val Thr Pro Val Phe Gln Pro	
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Met Asn Ile His Met Lys Arg Lys Thr Ile Lys Asn ^d Ile Asn Thr Phe	
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Pro Asp Met Glu Ala Val Pro Leu Leu Leu Asn Asn Val Lys Gly Glu	
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Pro Pro Glu Asp Ser Leu Ser Val Asp His Phe Gln Thr Gln Thr Glu	
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Pro Val Asp Leu Ser Ile Asn Lys Ala Arg Thr Ser Pro Thr Ala Val	
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Ser Ser Ser Pro Val Ser Met Thr Ala Ser Ala Ser Ser Pro Ser Ser	
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Thr	Ile	Val	Val	Pro	Leu	Leu	Glu	Asp	Gly	Arg	Gly	His	Gly	Lys	Ala	
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Gln	Met	Asp	Pro	Arg	Gly	Leu	Ser	Pro	Arg	Gln	Ser	Lys	Ser	Asp	Ser	
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Asp	Asp	Asp	Asp	Leu	Pro	Asn	Val	Thr	Leu	Asp	Ser	Val	Asn	Glu	Thr	
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Gly	Ser	Thr	Ala	Leu	Ser	Ile	Ala	Arg	Ala	Val	Gln	Glu	Val	His	Pro	
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Ser	Pro	Val	Ser	Arg	Val	Arg	Gly	Asn	Arg	Met	Asn	Asn	Gln	Lys	Phe	
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Pro	Cys	Ser	Ile	Ser	Pro	Phe	Ser	Ile	Glu	Ser	Thr	Arg	Arg	Gln	Arg	
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Arg	Ser	Glu	Ser	Pro	Asp	Ser	Arg	Lys	Arg	Arg	Ile	His	Arg	Cys	Asp	
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His	Arg	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Tyr	Lys	Cys	Thr	Trp	Glu	
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Arg	Lys	His	Thr	Gly	Val	Lys	Pro	Phe	Lys	Cys	Ala	Asp	Cys	Asp	Arg	
369					374					379					384	
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 Ile Leu Asn Ala Glu Ala Phe Lys Ser Lys Lys Ile Cys Lys Ser Leu
 14 19 24 29
 aag att tgt gga ctg gtg ttt ggt atc ctg gcc cta act cta att gtc 265
 Lys Ile Cys Gly Leu Val Phe Gly Ile Leu Ala Leu Thr Leu Ile Val
 30 35 40 45
 ctg ttt tgg ggg agc aag cac ttc tgg ccg gag gta ccc aaa aaa gcc 313
 Leu Phe Trp Gly Ser Lys His Phe Trp Pro Glu Val Pro Lys Lys Ala
 46 51 56 61
 tat gac atg gag cac act ttc tac agc aat gga gag aag aag aag att 361
 Tyr Asp Met Glu His Thr Phe Tyr Ser Asn Gly Glu Lys Lys Lys Ile
 62 67 72 77
 tac atg gaa att gat cct gtg acc aga act gaa ata ttc aga agc gga 409
 Tyr Met Glu Ile Asp Pro Val Thr Arg Thr Glu Ile Phe Arg Ser Gly
 78 83 88 93
 aat ggc act gat gaa aca ttg gaa gta cac gac ttt aaa aac gga tac 457
 Asn Gly Thr Asp Glu Thr Leu Glu Val His Asp Phe Lys Asn Gly Tyr
 94 99 104 109
 act ggc atc tac ttc gtg ggt ctt caa aaa tgt ttt atc aaa act cag 505
 Thr Gly Ile Tyr Phe Val Gly Leu Gln Lys Cys Phe Ile Lys Thr Gln
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 Ile Lys Val Ile Pro Glu Phe Ser Glu Pro Glu Glu Glu Ile Asp Glu
 126 131 136 141
 aat gaa gaa att acc aca act ttc ttt gaa cag tca gtg att tgg gtc 601

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Ile Leu Asn Ala Glu Ala Phe Lys Ser Lys Lys Ile Cys Lys Ser Leu
14 19 24 29

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Lys Ile Cys Gly Leu Val Phe Gly Ile Leu Ala Leu Thr Leu Ile Val
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46 51 56 61

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62 67 72 77

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78 83 88 93

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110 115 120 125

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126 131 136 141

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Ala Ser Glu Glu Glu Leu Pro Ile Asn Asp Tyr Thr Glu Asn Gly Ile	
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Glu Phe Asp Pro Met Leu Asp Glu Arg Gly Tyr Cys Cys Ile Tyr Cys	
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Thr Asp Leu Val Ala Val Trp Asp Val Ala Leu Ser Asp Gly Val His	
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Lys Ile Glu Phe Glu His Gly Thr Thr Ser Gly Lys Arg Val Val Tyr	
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Val Asp Gly Lys Glu Glu Ile Arg Lys Glu Trp Met Phe Lys Leu Val	
56 61 66 71	
ggc aaa gaa aca ttc tat gtt gga gct gca aag aca aaa gcg acc ata	592
Gly Lys Glu Thr Phe Tyr Val Gly Ala Ala Lys Thr Lys Ala Thr Ile	
72 77 82 87	
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Asn Ile Asp Ala Ile Ser Gly Phe Ala Tyr Glu Tyr Thr Leu Glu Ile	
88 93 98 103	
aat ggg aaa agt ctc aag aag tat atg gag gac aga tca aaa acc acc	688
Asn Gly Lys Ser Leu Lys Lys Tyr Met Glu Asp Arg Ser Lys Thr Thr	
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gcg acc ggg gcg gag gag gag gcg ccc tgg gcg gcg acg gag cgg cga	195
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Met Pro Gly Gln Cys Ser Val Leu Leu Phe Pro Gly Gln Gly Ser Gln	
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Val Val Gly Met Gly Arg Gly Leu Leu Asn Tyr Pro Arg Val Arg Glu	
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Leu Tyr Ala Ala Ala Arg Arg Val Leu Gly Tyr Asp Leu Leu Glu Leu	
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Ser Leu His Gly Pro Gln Glu Thr Leu Asp Arg Thr Val His Cys Gln	
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ccc gcg atc ttc gtg gca tcg ctg gcc gct gtc gag aaa cta cat cac	435
Pro Ala Ile Phe Val Ala Ser Leu Ala Ala Val Glu Lys Leu His His	
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Leu Gln Pro Ser Val Ile Glu Asn Cys Val Ala Ala Ala Gly Phe Ser	
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Val Gly Glu Phe Ala Ala Leu Val Phe Ala Gly Ala Met Glu Phe Ala	
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Ser Glu Ala Val Pro Ser Gly Met Leu Ser Val Leu Gly Gln Pro Gln	
186 191 196 201	
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Ser Lys Phe Asn Phe Ala Cys Leu Glu Ala Arg Glu His Cys Lys Ser	
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218 223 228 233	
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Asp Cys Arg Val Ile Ser Gly His Gln Glu Ala Leu Arg Phe Leu Gln	
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Lys Asn Ser Ser Lys Phe His Phe Arg Arg Thr Arg Met Leu Pro Val	
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Thr Gln Ala Leu Lys Ala Val Asp Ile Lys Lys Pro Leu Val Ser Val	
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Tyr Ser Asn Val His Ala His Arg Tyr Arg His Pro Gly His Ile His	
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Lys Leu Leu Ala Gln Gln Leu Val Ser Pro Val Lys Trp Glu Gln Thr	
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Met His Ala Ile Tyr Glu Arg Lys Lys Gly Arg Gly Phe Pro Gln Thr	
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Phe Glu Val Gly Pro Gly Arg Gln Leu Gly Ala Ile Leu Lys Ser Cys	
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Leu Glu His Val Asp Leu Asp Pro Gln Glu Pro Pro Arg *	
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Met Pro Ala Thr
1

cgg aag cca atg aga tat ggg cat aca gag gga cac acg gag gtc tgt 163
Arg Lys Pro Met Arg Tyr Gly His Thr Glu Gly His Thr Glu Val Cys
5 10 15 20

ttt gat gat tct ggg agt ttt att gtg act tgt gga agt gat ggt gat 211
Phe Asp Asp Ser Gly Ser Phe Ile Val Thr Cys Gly Ser Asp Gly Asp
21 26 31 36

gtg agg att tgg gaa gac ttg gat gat gat gat cct aag ttc att aat 259
Val Arg Ile Trp Glu Asp Leu Asp Asp Asp Asp Pro Lys Phe Ile Asn
37 42 47 52

gtt gga gaa aag gca tat tca tgt gct ttg aag agt gga aaa ctg gtc 307
Val Gly Glu Lys Ala Tyr Ser Cys Ala Leu Lys Ser Gly Lys Leu Val
53 58 63 68

act gca gtt tct aat aat act att caa gtc cac aca ttt cct gaa gga 355
Thr Ala Val Ser Asn Asn Thr Ile Gln Val His Thr Phe Pro Glu Gly
69 74 79 84

gtt cca gat ggt ata ttg act cgc ttc act aca aat gca aac cat gtg 403
Val Pro Asp Gly Ile Leu Thr Arg Phe Thr Thr Asn Ala Asn His Val
85 90 95 100

gtc ttt aat ggg gat ggt act aaa att gct gct gga tct agt gat ttt 451
Val Phe Asn Gly Asp Gly Thr Lys Ile Ala Ala Gly Ser Ser Asp Phe
101 106 111 116

cta gtc aaa att gtg gat gtg atg gat agc agc caa cag aaa aca ttt 499
Leu Val Lys Ile Val Asp Val Met Asp Ser Ser Gln Gln Lys Thr Phe
117 122 127 132

cga gga cat gat gcc cct gtt tta agt ctt tcc ttt gat cct aag gac 547
Arg Gly His Asp Ala Pro Val Leu Ser Leu Ser Phe Asp Pro Lys Asp
133 138 143 148

atc ttt ctg gca tca gct agt tgt gat gga tct gtc aga gtg tgg caa 595
Ile Phe Leu Ala Ser Ala Ser Cys Asp Gly Ser Val Arg Val Trp Gln
149 154 159 164

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Ile Ser Asp Gln Thr Cys Ala Ile Ser Trp Pro Leu Leu Gln Lys Cys
165 170 175 180

aac gat gtg ata aat gca aaa tca atc tgc aga ctt gct tgg cag cca 691
Asn Asp Val Ile Asn Ala Lys Ser Ile Cys Arg Leu Ala Trp Gln Pro
181 186 191 196

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Lys Ser Gly Lys Leu Leu Ala Ile Pro Val Glu Lys Ser Val Lys Leu	
197 202 207 212	
tat aga aga gaa tct tgg agt cat caa ttt gat ctt tca gat aat ttc	787
Tyr Arg Arg Glu Ser Trp Ser His Gln Phe Asp Leu Ser Asp Asn Phe	
213 218 223 228	
atc tct cag acc ctc aat ata gta acc tgg tct ccc tgt ggg caa tat	835
Ile Ser Gln Thr Leu Asn Ile Val Thr Trp Ser Pro Cys Gly Gln Tyr	
229 234 239 244	
tta gct gca ggt agt att aat ggt cta atc ata gtt tgg aat gtg gaa	883
Leu Ala Ala Gly Ser Ile Asn Gly Leu Ile Ile Val Trp Asn Val Glu	
245 250 255 260	
acc aaa gac tgc atg gaa agg gtg aaa cat gag aaa ggt tat gca att	931
Thr Lys Asp Cys Met Glu Arg Val Lys His Glu Lys Gly Tyr Ala Ile	
261 266 271 276	
tgt ggt ctg gca tgg cat cct act tgt ggt cga ata tcg tat act gat	979
Cys Gly Leu Ala Trp His Pro Thr Cys Gly Arg Ile Ser Tyr Thr Asp	
277 282 287 292	
gcg gaa gga aat cta ggg ctt cta gag aat gtt tgt gac ccc agt gga	1027
Ala Glu Gly Asn Leu Gly Leu Leu Glu Asn Val Cys Asp Pro Ser Gly	
293 298 303 308	
aag aca tca agc agt aag gta tct agc aga gtg gaa aag gat tat aat	1075
Lys Thr Ser Ser Ser Lys Val Ser Ser Arg Val Glu Lys Asp Tyr Asn	
309 314 319 324	
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Asp Leu Phe Asp Gly Asp Asp Met Ser Asn Ala Gly Asp Phe Leu Asn	
325 330 335 340	
gac aat gca gtt gag atc cct tct ttt tca aaa ggg att ata aat gat	1171
Asp Asn Ala Val Glu Ile Pro Ser Phe Ser Lys Gly Ile Ile Asn Asp	
341 346 351 356	
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Asp Glu Asp Asp Glu Asp Leu Met Met Ala Ser Gly Arg Pro Arg Gln	
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Arg Ser His Ile Leu Glu Asp Asp Glu Asn Ser Val Asp Ile Ser Met	
373 378 383 388	
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Leu Lys Thr Gly Ser Ser Leu Leu Lys Glu Glu Glu Glu Asp Gly Gln	
389 394 399 404	
gaa ggc agc att cac aat cta cca ctt gta aca tcc caa agg cca ttt	1363
Glu Gly Ser Ile His Asn Leu Pro Leu Val Thr Ser Gln Arg Pro Phe	
405 410 415 420	

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Tyr Asp Gly Pro Met Pro Thr Pro Arg Gln Lys Pro Phe Gln Ser Gly	
421 426 431 436	
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Ser Thr Pro Leu His Leu Thr His Arg Phe Met Val Trp Asn Ser Ile	
437 442 447 452	
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Gly Ile Ile Arg Cys Tyr Asn Asp Glu Gln Asp Asn Ala Ile Asp Val	
453 458 463 468	
gag ttc cat gat acc tcc ata cac cat gca aca cac tta tca aac act	1555
Glu Phe His Asp Thr Ser Ile His His Ala Thr His Leu Ser Asn Thr	
469 474 479 484	
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Leu Asn Tyr Thr Ile Ala Asp Leu Ser His Glu Ala Ile Leu Leu Ala	
485 490 495 500	
tgt gaa agc act gat gaa cta gca agc aag ctt cac tgc ctg cac ttt	1651
Cys Glu Ser Thr Asp Glu Leu Ala Ser Lys Leu His Cys Leu His Phe	
501 506 511 516	
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Ser Ser Trp Asp Ser Ser Lys Glu Trp Ile Ile Asp Leu Pro Gln Asn	
517 522 527 532	
gag gat att gaa gcc ata tgt ctc ggt caa gga tgg gct gct gcc gct	1747
Glu Asp Ile Glu Ala Ile Cys Leu Gly Gln Gly Trp Ala Ala Ala Ala	
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Thr Ser Ala Leu Leu Leu Arg Leu Phe Thr Ile Gly Gly Val Gln Lys	
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Glu Val Phe Ser Leu Ala Gly Pro Val Val Ser Met Ala Gly His Gly	
565 570 575 580	
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Glu Gln Leu Phe Ile Val Tyr His Arg Gly Thr Gly Phe Asp Gly Asp	
581 586 591 596	
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Gln Cys Leu Gly Val Gln Leu Leu Glu Leu Gly Lys Lys Lys Lys Gln	
597 602 607 612	
att ttg cat ggt gac cct ctt cct ctt aca agg aaa tcc tac ctt gca	1987
Ile Leu His Gly Asp Pro Leu Pro Leu Thr Arg Lys Ser Tyr Leu Ala	
613 618 623 628	
tgg att ggg ttt tca gct gaa ggt acc cct tgt tac gtg gat tca gaa	2035
Trp Ile Gly Phe Ser Ala Glu Gly Thr Pro Cys Tyr Val Asp Ser Glu	
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gga att gtt cga atg ctt aac aga gga ctt ggt aat acg tgg act cct	2083

Gly 645	Ile	Val	Arg	Met	Leu 650	Asn	Arg	Gly	Leu	Gly 655	Asn	Thr	Trp	Thr	Pro 660	
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tta Leu 709	tcc Ser	ttt Phe	aag Lys	ctt Leu	cct Pro 714	tac Tyr	tgt Cys	cag Gln	att Ile	gca Ala 719	aca Thr	gag Glu	aaa Lys	gga Gly	caa Gln 724	2275
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gca Ala 757	aca Thr	aaa Lys	gag Glu	caa Gln	cag Gln 762	gaa Glu	ctt Leu	tta Leu	atg Met	aaa Lys 767	atg Met	ctt Leu	gcg Ala	ctt Leu	tct Ser 772	2419
tgt Cys 773	aaa Lys	ctg Leu	gag Glu	cga Arg	gaa Glu 778	ttc Phe	cgt Arg	tgt Cys	gtg Val	gaa Glu 783	ctt Leu	gct Ala	gat Asp	cta Leu	atg Met 788	2467
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gcc Ala 821	gaa Glu	ttg Leu	aca Thr	gca Ala	acc Thr 826	cag Gln	gtg Val	gaa Glu	gag Glu	gaa Glu 831	gaa Glu	gaa Glu	gaa Glu	gaa Glu	gat Asp 836	2611
ttc Phe 837	aga Arg	aaa Lys	aag Lys	ctg Leu	aat Asn 842	gct Ala	ggt Gly	tac Tyr	agc Ser	aat Asn 847	act Thr	gct Ala	aca Thr	gag Glu	tgg Trp 852	2659
agc Ser 853	caa Gln	cca Pro	agg Arg	ttc Phe	aga Arg 858	aat Asn	caa Gln	gtt Val	gaa Glu	gaa Glu 863	gat Asp	gct Ala	gag Glu	gac Asp	agt Ser 868	2707
gga Gly	gaa Glu	gct Ala	gat Asp	gat Asp	gaa Glu	gaa Glu	aaa Lys	cca Pro	gaa Glu	ata Ile	cat His	aag Lys	cct Pro	gga Gly	cag Gln	2755

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 Lys Gln Lys Pro Leu Asp Phe Ser Thr Asn Gln Lys Leu Ser Ala Phe
 1109 1114 1119 1124

gca ttt aag cag gag taa aggaag aaagtgaccc tagggaagta atggattttt 3529
 Ala Phe Lys Gln Glu *
 1125 1130

ttttactcat ctttgaatat agactcgagt ctttgggaaa ctcattatat atatattttt 3589

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cctttcagag atgcattgtg attgtaatta ctgagttgaa gctccaacca atttgaattt 3769

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 Gly Trp Leu Glu Ser Leu Arg Thr Ala Gln Lys Thr Ala Leu Leu Gln
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 Asp Gly Arg Arg Lys Val His Tyr Leu Phe Pro Asp Gly Lys Glu Met
 21 26 31 36

gct gaa gaa tat gac gag aag acg agt gaa cta ctt gtg aga aag tgg 199
 Ala Glu Glu Tyr Asp Glu Lys Thr Ser Glu Leu Val Arg Lys Trp
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Arg Val Lys Ser Ala Leu Gly Ala Met Gly Gln Trp Gln Leu Glu Val	
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Gly Asp Pro Ala Pro Leu Gly Ala Gly Asn Leu Gly Pro Glu Leu Ile	
69 74 79 84	
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Lys Glu Ser Asn Ala Asn Pro Ile Phe Met Arg Lys Asp Thr Lys Met	
85 90 95 100	
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Ser Phe Gln Trp Arg Ile Arg Asn Leu Pro Tyr Pro Lys Asp Val Tyr	
101 106 111 116	
agt gtc tct gtg gac cag aag gag cgc tgc atc att gtc aga aca acc	439
Ser Val Ser Val Asp Gln Lys Glu Arg Cys Ile Ile Val Arg Thr Thr	
117 122 127 132	
aac aag aag tac tac aag aag ttc tcc att cct gat cta gat aga cac	487
Asn Lys Lys Tyr Tyr Lys Lys Phe Ser Ile Pro Asp Leu Asp Arg His	
133 138 143 148	
cag cta cct ctg gat gac gcc ttg ctg agc ttt gcc cac gcc aac tgc	535
Gln Leu Pro Leu Asp Asp Ala Leu Leu Ser Phe Ala His Ala Asn Cys	
149 154 159 164	
acc ctg atc atc tct tac cag aag cca aag gag gtt gtg gtg gcc gag	583
Thr Leu Ile Ile Ser Tyr Gln Lys Pro Lys Glu Val Val Val Ala Glu	
165 170 175 180	
tct gag cta cag aag gaa cta aag aag gtg aag aca gcc cac agc aac	631
Ser Glu Leu Gln Lys Glu Leu Lys Lys Val Lys Thr Ala His Ser Asn	
181 186 191 196	
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Asp Gly Asp Cys Lys Thr Gln *	
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Ala Pro Pro Val Phe Val Phe Gln Lys Asp Lys Gly Gln Lys Ser Pro	
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Ala Glu Gln Lys Asn Leu Ser Asp Ser Gly Glu Glu Pro Arg Gly Glu	
29 34 39 44	
gct gag gcc ccc cac cat ggc acg ggt cac ccc gag tca gct ggc gag	253
Ala Glu Ala Pro His His Gly Thr Gly His Pro Glu Ser Ala Gly Glu	
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His Ala Leu Glu Pro Pro Ala Pro Ala Gly Ala Ser Ala Ser Thr Pro	
61 66 71 76	
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Pro Pro Pro Ala Pro Glu Ala Gln Leu Pro Pro Phe Pro Arg Glu Leu	
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Ala Gly Arg Ser Ala Gly Gly Ser Ser Pro Glu Gly Gly Glu Asp Ser	
93 98 103 108	
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Asp Arg Glu Asp Gly Asn Tyr Cys Pro Pro Val Lys Arg Glu Arg Thr	
109 114 119 124	
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Ser Ser Leu Thr Gln Phe Pro Pro Ser Gln Ser Glu Glu Arg Ser Ser	
125 130 135 140	
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atc cag gag ctg ctg gca aag ctt caa ggc ctc cac agg cag ccc ggc	446
Ile Gln Glu Leu Leu Ala Lys Leu Gln Gly Leu His Arg Gln Pro Gly	
108 113 118 123	
ctc cgc cag cca agc ccc tcc cac gac ggc agc ctc agc ccc ctc cag	494
Leu Arg Gln Pro Ser Pro Ser His Asp Gly Ser Leu Ser Pro Leu Gln	
124 129 134 139	
gac cgg gcc cgg act gct cac ccc tga ccctc ttgcactctc cctgcccccc	546
Asp Arg Ala Arg Thr Ala His Pro *	
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aactgaaaag tgaagcaggc agtaatacag cc	atg gaa aga aat tca agt tta	173
	Met Glu Arg Asn Ser Ser Leu	
	1 5	
tgg aag aac cta ata gat gaa cac cca gtc tgc aca acc tgg aag caa	221	
Trp Lys Asn Leu Ile Asp Glu His Pro Val Cys Thr Thr Trp Lys Gln		
8 13 18 23		
gag gcc gaa gga gcc att tat cat ctt gcc agt att tta ttt gta gta	269	
Glu Ala Glu Gly Ala Ile Tyr His Leu Ala Ser Ile Leu Phe Val Val		
24 29 34 39		
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Gly Phe Met Gly Gly Ser Gly Phe Phe Gly Leu Leu Tyr Val Phe Ser		
40 45 50 55		
ttg ctg ggg ttg ggt ttt ctc tgt tct gct gtc tgg gct tgg gta gat	365	
Leu Leu Gly Leu Gly Phe Leu Cys Ser Ala Val Trp Ala Trp Val Asp		
56 61 66 71		
gtc tgt gca gct gac ata ttt tcc tgg aat ttt gta ctg ttt gtc atc	413	
Val Cys Ala Ala Asp Ile Phe Ser Trp Asn Phe Val Leu Phe Val Ile		
72 77 82 87		
tgc ttc atg caa ttt gtt cat att gca tat caa gtt cgc agc ata acc	461	
Cys Phe Met Gln Phe Val His Ile Ala Tyr Gln Val Arg Ser Ile Thr		
88 93 98 103		
ttt gcc cga gaa ttc caa gtg ttg tac agc tcc ctt ttc cag ccc ctg	509	
Phe Ala Arg Glu Phe Gln Val Leu Tyr Ser Ser Leu Phe Gln Pro Leu		
104 109 114 119		
ggg atc tct ttg cct gtc ttc aga acg att gct ttg agc tct gaa gtg	557	
Gly Ile Ser Leu Pro Val Phe Arg Thr Ile Ala Leu Ser Ser Glu Val		
120 125 130 135		
gtt act ttg gaa aag gaa cac tgt tat gcc atg cag ggg aaa act tcc	605	
Val Thr Leu Glu Lys Glu His Cys Tyr Ala Met Gln Gly Lys Thr Ser		
136 141 146 151		
att gat aaa ctc tcc ttg ctt gtt tca gga agg atc aga gtg aca gtt	653	
Ile Asp Lys Leu Ser Leu Leu Val Ser Gly Arg Ile Arg Val Thr Val		
152 157 162 167		
gat ggc gaa ttt ctg cat tac att ttc ccc ctt cag ttc ctg gat tct	701	
Asp Gly Glu Phe Leu His Tyr Ile Phe Pro Leu Gln Phe Leu Asp Ser		
168 173 178 183		
cct gag tgg gat tca ctg aga ccc aca gag gaa ggc att ttt cag gta	749	
Pro Glu Trp Asp Ser Leu Arg Pro Thr Glu Glu Gly Ile Phe Gln Val		
184 189 194 199		
acc ctc act gca gaa act gat tgt cga tat gtg tct tgg agg aga aag	797	
Thr Leu Thr Ala Glu Thr Asp Cys Arg Tyr Val Ser Trp Arg Arg Lys		
200 205 210 215		
aaa tta tat ctg ctc ttt gct cag cat cgc tac atc tcc cgc ctt ttt	845	

Lys	Leu	Tyr	Leu	Leu	Phe	Ala	Gln	His	Arg	Tyr	Ile	Ser	Arg	Leu	Phe		
216					221					226					231		
tca	gtg	cta	att	ggc	agt	gac	att	gca	gat	aaa	ctc	tat	gcc	ttg	aat		893
Ser	Val	Leu	Ile	Gly	Ser	Asp	Ile	Ala	Asp	Lys	Leu	Tyr	Ala	Leu	Asn		
232					237					242					247		
gac	agg	tca	ggc	ccc	tct	tct	gca	gaa	atg	ctg	cag	ttt	gct	gga	ggt		941
Asp	Arg	Ser	Gly	Pro	Ser	Ser	Ala	Glu	Met	Leu	Gln	Phe	Ala	Gly	Gly		
248					253					258					263		
cca	ctc	cag	acc	ctc	ttt	gcc	tgt	gtt	tcg	cca	gtg	gag	gat	gca	gga		989
Pro	Leu	Gln	Thr	Leu	Phe	Ala	Cys	Val	Ser	Pro	Val	Glu	Asp	Ala	Gly		
264					269					274					279		
cag	gaa	aga	ttg	ttg	cct	gct	cct	tcc	tca	aga	agc	ttc	atc	caa	gag		1037
Gln	Glu	Arg	Leu	Leu	Pro	Ala	Pro	Ser	Ser	Arg	Ser	Phe	Ile	Gln	Glu		
280					285					290					295		
ggt	cac	tgg	cct	gat	gcc	agc	cag	agg	tct	cct	ctg	caa	aaa	caa	aca		1085
Gly	His	Trp	Pro	Asp	Ala	Ser	Gln	Arg	Ser	Pro	Leu	Gln	Lys	Gln	Thr		
296					301					306					311		
agc	aaa	caa	aaa	aca	ata	aaa	tac	tta	gga	ata	tac	cta	aca	aag	gag		1133
Ser	Lys	Gln	Lys	Thr	Ile	Lys	Tyr	Leu	Gly	Ile	Tyr	Leu	Thr	Lys	Glu		
312					317					322					327		
ttg	aaa	gac	ctc	tgc	aag	gaa	aac	tac	aaa	aca	ctg	ctg	aaa	gaa	ata		1181
Leu	Lys	Asp	Leu	Cys	Lys	Glu	Asn	Tyr	Lys	Thr	Leu	Leu	Lys	Glu	Ile		
328					333					338					343		
gat	gat	gca	aac	aaa	tgg	aaa	cac	atc	cca	tgc	tca	tgg	atg	ggt	aga		1229
Asp	Asp	Ala	Asn	Lys	Trp	Lys	His	Ile	Pro	Cys	Ser	Trp	Met	Gly	Arg		
344					349					354					359		
atc	aat	gtg	aaa	atg	acc	atg	ctg	cca	aaa	gca	atc	tac	aaa	ttc	aat		1277
Ile	Asn	Val	Lys	Met	Thr	Met	Leu	Pro	Lys	Ala	Ile	Tyr	Lys	Phe	Asn		
360					365					370					375		
gca	atc	ccc	atc	aaa	ata	cca	cca	tca	ttc	ttc	aca	gag	tta	gaa	aag		1325
Ala	Ile	Pro	Ile	Lys	Ile	Pro	Pro	Ser	Phe	Phe	Thr	Glu	Leu	Glu	Lys		
376					381					386					391		
aca	att	cta	aaa	ttc	ata	tgg	aac	caa	aaa	aga	gcc	cac	att	gtc	aaa		1373
Thr	Ile	Leu	Lys	Phe	Ile	Trp	Asn	Gln	Lys	Arg	Ala	His	Ile	Val	Lys		
392					397					402					407		
gca	aga	cta	agc	aaa	aag	aac	aaa	tct	gga	ggc	atc	aca	cta	cct	gat		1421
Ala	Arg	Leu	Ser	Lys	Lys	Asn	Lys	Ser	Gly	Gly	Ile	Thr	Leu	Pro	Asp		
408					413					418					423		
ttc	aaa	cga	tac	tac	aag	gcc	aca	gtc	acc	aaa	aca	gca	tgg	tac	tgg		1469
Phe	Lys	Arg	Tyr	Tyr	Lys	Ala	Thr	Val	Thr	Lys	Thr	Ala	Trp	Tyr	Trp		
424					429					434					439		
tat	aga	aat	agg	cgc	ata	gac	caa	tgg	aac	aga	ata	gag	aac	cca	gaa		1517
Tyr	Arg	Asn	Arg	Arg	Ile	Asp	Gln	Trp	Asn	Arg	Ile	Glu	Asn	Pro	Glu		

440	445	450	455	
ata aac cca aat act tac agc caa ctg atc ttt gac aaa gca aac aaa				1565
Ile Asn Pro Asn Thr Tyr Ser Gln Leu Ile Phe Asp Lys Ala Asn Lys				
456	461	466	471	
aac ata aac cag gga agg gac acc ctt ttc aac aga tgg tgc tgg gat				1613
Asn Ile Asn Gln Gly Arg Asp Thr Leu Phe Asn Arg Trp Cys Trp Asp				
472	477	482	487	
aat tgg cta gcc aca tgt agg aga atg aaa ctg gat tct cat ctc tca				1661
Asn Trp Leu Ala Thr Cys Arg Arg Met Lys Leu Asp Ser His Leu Ser				
488	493	498	503	
cct tat ata aaa atc aac tcg atg gat taa				1691
Pro Tyr Ile Lys Ile Asn Ser Met Asp *				
504	509			

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	Met Ala Leu Ala Arg Pro		
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Val Arg Leu Phe Ser Leu Val Thr Arg Leu Leu Leu Ala Pro Arg Arg			
7	12	17	22
ggc ctc acg gtc cgc agt ccc gac gaa ccc ctg ccg gtg gtg cgc atc		148	
Gly Leu Thr Val Arg Ser Pro Asp Glu Pro Leu Pro Val Val Arg Ile			
23	28	33	38
cca gtg gct cta cag cgg cag ttg gaa cag cgg cag agc agg cgg cgg		196	
Pro Val Ala Leu Gln Arg Gln Leu Glu Gln Arg Gln Ser Arg Arg Arg			
39	44	49	54
aac ctc ccg agg ccg gtg ctg gtt cga ccc gga ccg ctg ctg gtt tcg		244	
Asn Leu Pro Arg Pro Val Leu Val Arg Pro Gly Pro Leu Leu Val Ser			
55	60	65	70
gcg cgg cgg ccg gag ttg aac cag ccg gcg cgc ctc aca ctg ggc cgt		292	
Ala Arg Arg Pro Glu Leu Asn Gln Pro Ala Arg Leu Thr Leu Gly Arg			
71	76	81	86
tgg gag cgc gcg ccg cta gcc tct caa ggc tgg aag agt cga cgc gcg		340	

Trp	Glu	Arg	Ala	Pro	Leu	Ala	Ser	Gln	Gly	Trp	Lys	Ser	Arg	Arg	Ala	
87					92					97					102	
cg	cg	gac	cac	ttc	tcc	atc	gag	cgc	gcg	caa	cag	gag	gcg	cca	g	388
Arg	Arg	Asp	His	Phe	Ser	Ile	Glu	Arg	Ala	Gln	Gln	Glu	Ala	Pro	Ala	
103					108					113					118	
gtg	cga	aag	ctc	tcg	tct	aag	ggc	agc	ttt	gct	gac	ctg	ggc	ctg	gag	436
Val	Arg	Lys	Leu	Ser	Ser	Lys	Gly	Ser	Phe	Ala	Asp	Leu	Gly	Leu	Glu	
119					124					129					134	
ccc	cg	gtg	ctg	cac	gca	cta	cag	gag	gct	g	cct	gaa	gtc	gtt	cag	484
Pro	Arg	Val	Leu	His	Ala	Leu	Gln	Glu	Ala	Ala	Pro	Glu	Val	Val	Gln	
135					140					145					150	
ccc	aca	acc	gtg	cag	tct	agc	acc	atc	ccc	tca	cta	ctt	cgc	ggc	cgc	532
Pro	Thr	Thr	Val	Gln	Ser	Ser	Thr	Ile	Pro	Ser	Leu	Leu	Arg	Gly	Arg	
151					156					161					166	
cat	gtc	gtt	tgc	gcc	gca	gaa	acc	ggc	agt	ggc	aag	act	ctc	agc	tac	580
His	Val	Val	Cys	Ala	Ala	Glu	Thr	Gly	Ser	Gly	Lys	Thr	Leu	Ser	Tyr	
167					172					177					182	
ctc	ctg	ccg	ctg	ctt	caa	cgg	ctc	ttg	ggc	cag	cca	agc	ctg	gac	tcc	628
Leu	Leu	Pro	Leu	Leu	Gln	Arg	Leu	Leu	Gly	Gln	Pro	Ser	Leu	Asp	Ser	
183					188					193					198	
ctt	cct	atc	ccc	gcg	ccc	cga	ggc	ctg	gtc	ctt	gtt	cct	tcc	cga	gaa	676
Leu	Pro	Ile	Pro	Ala	Pro	Arg	Gly	Leu	Val	Leu	Val	Pro	Ser	Arg	Glu	
199					204					209					214	
ttg	gcc	caa	cag	gtg	cgg	gct	gtg	gcc	caa	ccc	ttg	ggc	cgc	tcc	ttg	724
Leu	Ala	Gln	Gln	Val	Arg	Ala	Val	Ala	Gln	Pro	Leu	Gly	Arg	Ser	Leu	
215					220					225					230	
ggc	ctg	ctg	gtg	cgg	gac	ctg	gag	gga	ggc	cac	ggc	atg	cgt	agg	atc	772
Gly	Leu	Leu	Val	Arg	Asp	Leu	Glu	Gly	Gly	His	Gly	Met	Arg	Arg	Ile	
231					236					241					246	
agg	ctg	cag	ctg	tcc	aga	cag	cct	tca	gca	gat	gtg	ctt	gtg	gcc	act	820
Arg	Leu	Gln	Leu	Ser	Arg	Gln	Pro	Ser	Ala	Asp	Val	Leu	Val	Ala	Thr	
247					252					257					262	
cca	ggg	gct	ctg	tgg	aag	gcc	ctg	aaa	agt	cga	ctg	atc	agt	ctg	gag	868
Pro	Gly	Ala	Leu	Trp	Lys	Ala	Leu	Lys	Ser	Arg	Leu	Ile	Ser	Leu	Glu	
263					268					273					278	
caa	ctc	tcc	ttc	ttg	gtg	ttg	gat	gag	gca	gac	aca	ctg	ctg	gat	gaa	916
Gln	Leu	Ser	Phe	Leu	Val	Leu	Asp	Glu	Ala	Asp	Thr	Leu	Leu	Asp	Glu	
279					284					289					294	
agc	ttc	ctg	gaa	ctg	gtg	gac	tac	atc	tta	gag	aag	agc	cac	ata	gca	964
Ser	Phe	Leu	Glu	Leu	Val	Asp	Tyr	Ile	Leu	Glu	Lys	Ser	His	Ile	Ala	
295					300					305					310	
gaa	ggc	cca	gct	gac	ttg	gaa	gac	ccc	ttc	aat	ccc	aaa	gct	cag	tta	1012
Glu	Gly	Pro	Ala	Asp	Leu	Glu	Asp	Pro	Phe	Asn	Pro	Lys	Ala	Gln	Leu	

311	316	321	326	
gtg ctg gta gga gcc aca ttt ccc gaa ggt gta ggc cag ttg ctg aat				1060
Val Leu Val Gly Ala Thr Phe Pro Glu Gly Val Gly Gln Leu Leu Asn				
327	332	337	342	
aaa gtc gcc agc cca gat gct gtc acc acc atc acc agc tcc aag ctc				1108
Lys Val Ala Ser Pro Asp Ala Val Thr Thr Ile Thr Ser Ser Lys Leu				
343	348	353	358	
cac tgt atc atg cct cat gtg aaa cag aca ttt ctg aga ctg aag gga				1156
His Cys Ile Met Pro His Val Lys Gln Thr Phe Leu Arg Leu Lys Gly				
359	364	369	374	
gca gat aag gtg gcc gag ctg gtg cac atc ctc aag cat cgt gac aga				1204
Ala Asp Lys Val Ala Glu Leu Val His Ile Leu Lys His Arg Asp Arg				
375	380	385	390	
gca gaa agg act ggt ccc tca gga act gtt ctg gtg ttc tgt aat agc				1252
Ala Glu Arg Thr Gly Pro Ser Gly Thr Val Leu Val Phe Cys Asn Ser				
391	396	401	406	
tcc agc act gtg aac tgg ctg gga tat att ctg gat gac cac aaa atc				1300
Ser Ser Thr Val Asn Trp Leu Gly Tyr Ile Leu Asp Asp His Lys Ile				
407	412	417	422	
caa cac cta agg ttg cag ggg caa atg cca gcc ttg atg agg gta gga				1348
Gln His Leu Arg Leu Gln Gly Gln Met Pro Ala Leu Met Arg Val Gly				
423	428	433	438	
atc ttc cag tcc ttc cag aag agc tcc cga gac ata ctt ctc tgc aca				1396
Ile Phe Gln Ser Phe Gln Lys Ser Ser Arg Asp Ile Leu Leu Cys Thr				
439	444	449	454	
gac ata gcc tct cgg ggc ctg gac agc act ggt gtg gag ctg gtt gtc				1444
Asp Ile Ala Ser Arg Gly Leu Asp Ser Thr Gly Val Glu Leu Val Val				
455	460	465	470	
aat tat gat ttc ccc cca acg ctg caa gat tac atc cac aga gca ggg				1492
Asn Tyr Asp Phe Pro Pro Thr Leu Gln Asp Tyr Ile His Arg Ala Gly				
471	476	481	486	
aga gtg ggc cgt gtg ggg agc gag gtg cca ggc acc gtc atc agt ttt				1540
Arg Val Gly Arg Val Gly Ser Glu Val Pro Gly Thr Val Ile Ser Phe				
487	492	497	502	
gtg acc cat ccc tgg gat gtg agc ctg gtt cag aag att gag ctg gcg				1588
Val Thr His Pro Trp Asp Val Ser Leu Val Gln Lys Ile Glu Leu Ala				
503	508	513	518	
gct cgc cga agg aga agt ctt cca gga cta gca tcc tcg gtg aaa gag				1636
Ala Arg Arg Arg Arg Ser Leu Pro Gly Leu Ala Ser Ser Val Lys Glu				
519	524	529	534	
cct ttg ccc caa gca acc tga tt ttgacaaatc tgattaaaaat gtgatgctag				1689
Pro Leu Pro Gln Ala Thr *				
535	540			

aacagggatc tttcccagta tcttgagtgg gtgaccacac ttgtcagtgg gaggctctgg 1749
 gctgccctgt eggctccttg agggcgggat gaactgcttt gtgacttgga aaggtacgct 1809
 gctggccagc attggagaag aagctgctga gcatggcttt ctgtagtctt tagcaagaca 1869
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 Met Glu Arg Thr Glu Met Met Pro Thr Ile Asn Ser Gln
 1 5 10
 ctg gaa ttt aaa agt aag cct ttt cct tta gtc tcc tct tcc cgg tgg 157
 Leu Glu Phe Lys Ser Lys Pro Phe Pro Leu Val Ser Ser Ser Arg Trp
 14 19 24 29
 ttg gta aaa aga ggt gaa ttg aca gcc tat gtt gaa gac act gtg ctt 205
 Leu Val Lys Arg Gly Glu Leu Thr Ala Tyr Val Glu Asp Thr Val Leu
 30 35 40 45
 ttc tca aga agg aca tcc aaa cag caa gtc tac ttc ttt ctc ttt aac 253
 Phe Ser Arg Arg Thr Ser Lys Gln Gln Val Tyr Phe Phe Leu Phe Asn
 46 51 56 61
 gat gtg ctc att atc acc aag aag aag agt gaa gaa agt tac aac gtc 301
 Asp Val Leu Ile Ile Thr Lys Lys Lys Ser Glu Glu Ser Tyr Asn Val
 62 67 72 77
 aat gat tat tcc tta aga gat cag cta ttg gtg gaa tct tgt gac aat 349
 Asn Asp Tyr Ser Leu Arg Asp Gln Leu Leu Val Glu Ser Cys Asp Asn
 78 83 88 93
 gaa gag ctt aat tct tct cca ggg aag aac agc tcc aca atg ctc tat 397
 Glu Glu Leu Asn Ser Ser Pro Gly Lys Asn Ser Ser Thr Met Leu Tyr
 94 99 104 109
 tca aga cag agc tct gcc agt cac ctc ttt act ctg aca gtc ctt agt 445
 Ser Arg Gln Ser Ser Ala Ser His Leu Phe Thr Leu Thr Val Leu Ser
 110 115 120 125

aac cac gcg aat gag aaa gtg gag atg cta cta gga gct gag acg cag	493
Asn His Ala Asn Glu Lys Val Glu Met Leu Leu Gly Ala Glu Thr Gln	
126 131 136 141	
agc gag cga gcc cgc tgg ata act gcc ctg gga cac agc agc ggg aag	541
Ser Glu Arg Ala Arg Trp Ile Thr Ala Leu Gly His Ser Ser Gly Lys	
142 147 152 157	
ccg cct gca gac cga acc tca ctg acc cag gtg gaa atc gtt agg tca	589
Pro Pro Ala Asp Arg Thr Ser Leu Thr Gln Val Glu Ile Val Arg Ser	
158 163 168 173	
ttt act gct aag cag cca gat gaa ctc tcc ctg cag gtg gct gac gtc	637
Phe Thr Ala Lys Gln Pro Asp Glu Leu Ser Leu Gln Val Ala Asp Val	
174 179 184 189	
gtc ctc atc tat caa cgt gtc agc gat ggc tgg tat gag ggg gaa cga	685
Val Leu Ile Tyr Gln Arg Val Ser Asp Gly Trp Tyr Glu Gly Glu Arg	
190 195 200 205	
cta cga gat gga gaa aga ggc tgg ttt cct atg gaa tgt gcc aag gag	733
Leu Arg Asp Gly Glu Arg Gly Trp Phe Pro Met Glu Cys Ala Lys Glu	
206 211 216 221	
ata aca tgt caa gct aca att gat aag aat gtg gag aga atg gga cgc	781
Ile Thr Cys Gln Ala Thr Ile Asp Lys Asn Val Glu Arg Met Gly Arg	
222 227 232 237	
ttg cta gga ctg gag acc aac gtg tag tctct cagatggtct tttgttactg	833
Leu Leu Gly Leu Glu Thr Asn Val *	
238 243	
caagatttgc acgacactta ccgggctggt tggttctggg ctagttttat tgttaatttt	893
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 ttttagtaga gacaggggtt catcatgttg gccaggatgg tctcttaact cctgccctca 1793
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 ttgaacctg cttogacgtg tgtgtcatgg cttaaaaata gctgctaata tgtcaacctg 180
 tcttgggcag aaacagcggc ggcgacagca gcaggagcgt catggccgtg gcgctgtctg 240
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Thr Gly Tyr Ala His Ser Ser Leu Pro Ala Glu Leu Asp Ser Gly Ala
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Lys Ser Ile Ile Gln Glu Phe Pro Glu Ile Thr Ile Leu Thr Thr Glu	
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Gln Leu Val Leu Cys Ser Glu Asp Asp Arg Leu Pro Val Ile Gln Leu
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Trp Asp Leu Arg Phe Ala Ser Ser Pro Leu Lys Val Leu Glu Ser His
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Asp Val Gln Trp Cys Pro Arg Asp Pro Ser Val Phe Ser Ala Ala Ser
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Phe Asn Gly Trp Ile Ser Leu Tyr Ser Val Met Gly Arg Ser Trp Glu
111 116 121 126

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Ile Ser Pro Lys Met Pro Val Cys Lys Gly His Leu Gly Gln Pro Leu	
87 92 97 102	
aac att ttc tgc ctg act gat atg cag ctg att tgt ggg atc tgt gct	570
Asn Ile Phe Cys Leu Thr Asp Met Gln Leu Ile Cys Gly Ile Cys Ala	
103 108 113 118	
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Thr Arg Gly Glu His Thr Lys His Val Phe Cys Ser Ile Glu Asp Ala	
119 124 129 134	
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Tyr Ala Gln Glu Arg Asp Ala Phe Glu Ser Leu Phe Gln Ser Phe Glu	
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Thr Trp Arg Arg Gly Asp Ala Leu Ser Arg Leu Asp Thr Leu Glu Thr	
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Ser Lys Arg Lys Ser Leu Gln Leu Leu Thr Lys Asp Ser Asp Lys Val	
167 172 177 182	
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Lys Glu Phe Phe Glu Lys Leu Gln His Thr Leu Asp Gln Lys Lys Asn	
183 188 193 198	
gaa att ctg tct gac ttt gag acc atg aaa ctt gct gtt atg caa gca	858
Glu Ile Leu Ser Asp Phe Glu Thr Met Lys Leu Ala Val Met Gln Ala	
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Tyr Asp Pro Glu Ile Asn Lys Leu Asn Thr Ile Leu Gln Glu Gln Arg	
215 220 225 230	
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Met Ala Phe Asn Ile Ala Glu Ala Phe Lys Asp Val Ser Glu Pro Ile	
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gta ttt ctg caa cag atg cag gag ttt aga gag aaa atc aaa gta atc	1002
Val Phe Leu Gln Gln Met Gln Glu Phe Arg Glu Lys Ile Lys Val Ile	
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Lys Glu Thr Pro Leu Pro Pro Ser Asn Leu Pro Ala Ser Pro Leu Met	
263 268 273 278	
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Lys Asn Phe Asp Thr Ser Gln Trp Glu Asp Ile Lys Leu Val Asp Val	
279 284 289 294	
gat aaa ctt tct ttg cct caa gac act ggc aca ttc att agc aag att	1146
Asp Lys Leu Ser Leu Pro Gln Asp Thr Gly Thr Phe Ile Ser Lys Ile	
295 300 305 310	
ccc tgg agc ttt tat aag tta ttt ttg cta atc ctt ctg ctt ggc ctt	1194
Pro Trp Ser Phe Tyr Lys Leu Phe Leu Leu Ile Leu Leu Leu Gly Leu	
311 316 321 326	
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Val Ile Val Phe Gly Pro Thr Met Phe Leu Glu Trp Ser Leu Phe Asp	
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Asp Leu Ala Thr Trp Lys Gly Cys Leu Ser Asn Phe Ser Ser Tyr Leu	
343 348 353 358	
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Thr Lys Thr Ala Asp Phe Ile Glu Gln Ser Val Phe Tyr Trp Glu Gln	
359 364 369 374	
gtg aca gat ggg ttt ttc att ttc aat gaa aga ttc aag aat ttt act	1386
Val Thr Asp Gly Phe Phe Ile Phe Asn Glu Arg Phe Lys Asn Phe Thr	
375 380 385 390	
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Leu Val Val Leu Asn Asn Val Ala Glu Phe Val Cys Lys Tyr Lys Leu	
391 396 401 406	
tta taa aatcaaaaaa aaaaaaaggg gggggcccttt aaaaaaaaca aattttaata	1490
Leu *	
407	
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ccaaannnnn nnnnnnnngn nnaantcttt ttaantctta tactcccagt acaatngcat	1670
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aatctttctt tgctttcccc atcttttctt cgcatttttt caccatcttt ccctcaatct      180
ccaggagcca atgcgagact ttggctccga ttaagcgacg gcccgagact tgggggtgcgc      240
gaggaggatc gacagagtgg tg atg gag agc acc cct tca agg gga ctg aac      292
                Met Glu Ser Thr Pro Ser Arg Gly Leu Asn
                  1                      5

cga gta cac cta caa tgc agg aat ctg cag gaa ttc tta ggg ggc ctg      340
Arg Val His Leu Gln Cys Arg Asn Leu Gln Glu Phe Leu Gly Gly Leu
  11                      16                      21                      26

agc cct ggg gta ttg gac cga ttg tat ggg cac cct gcc aca tgt ctg      388
Ser Pro Gly Val Leu Asp Arg Leu Tyr Gly His Pro Ala Thr Cys Leu
  27                      32                      37                      42

gct gtc ttc agg gag ctc cca tcc ttg gct aag aac tgg gtg atg cgg      436
Ala Val Phe Arg Glu Leu Pro Ser Leu Ala Lys Asn Trp Val Met Arg
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atg ctc ttt ctg gag cag cct ttg cca cag gct gct gta gct ctg tgg      484
Met Leu Phe Leu Glu Gln Pro Leu Pro Gln Ala Ala Val Ala Leu Trp
  59                      64                      69                      74

gta aag aag gaa ttc agc aag gct cag gag gaa agt aca ggg ctg ctg      532
Val Lys Lys Glu Phe Ser Lys Ala Gln Glu Glu Ser Thr Gly Leu Leu
  75                      80                      85                      90

agc ggc ctc cgg atc tgg cac acc cag ctg ctc cca ggc ggg ctc cag      580
Ser Gly Leu Arg Ile Trp His Thr Gln Leu Leu Pro Gly Gly Leu Gln
  91                      96                      101                      106

ggc ctc atc ctc aac ccc att ttc cgc cag aac ctc cgc att gcc ctt      628
Gly Leu Ile Leu Asn Pro Ile Phe Arg Gln Asn Leu Arg Ile Ala Leu
  107                      112                      117                      122

ctg ggt ggg ggg aag gcc tgg tct gat gac aca agt cag ctg gga cca      676
Leu Gly Gly Gly Lys Ala Trp Ser Asp Asp Thr Ser Gln Leu Gly Pro
  123                      128                      133                      138

gac aag cat gcc cgg gac gtt ccc tcc ctt gac aag tac gcc gag gag      724
Asp Lys His Ala Arg Asp Val Pro Ser Leu Asp Lys Tyr Ala Glu Glu
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cga tgg gag gtg gtc ttg cac ttc atg gtg ggc tcc ccc agt gca gct      772
Arg Trp Glu Val Val Leu His Phe Met Val Gly Ser Pro Ser Ala Ala
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Val Ser Gln Asp Leu Ala Gln Leu Leu Ser Gln Ala Gly Leu Met Lys				
171	176	181	186	
agt act gaa cct gga gag ccg ccc tgc att act tcc gct ggc ttc cag				868
Ser Thr Glu Pro Gly Glu Pro Pro Cys Ile Thr Ser Ala Gly Phe Gln				
187	192	197	202	
ttc ctg ttg ctg gac acc ccg gct cag ctc tgg tac ttt atg ttg cag				916
Phe Leu Leu Leu Asp Thr Pro Ala Gln Leu Trp Tyr Phe Met Leu Gln				
203	208	213	218	
tat ttg cag aca gcc cag agc cgg ggc atg gac ctg gta gag att ctc				964
Tyr Leu Gln Thr Ala Gln Ser Arg Gly Met Asp Leu Val Glu Ile Leu				
219	224	229	234	
tcc ttc ctc ttc cag ctc agc ttc tct act ctg ggc aag gat tac tct				1012
Ser Phe Leu Phe Gln Leu Ser Phe Ser Thr Leu Gly Lys Asp Tyr Ser				
235	240	245	250	
gtg gaa ggt atg agt gat tct ctg ttg aac ttc ctg caa cat ctg cgt				1060
Val Glu Gly Met Ser Asp Ser Leu Leu Asn Phe Leu Gln His Leu Arg				
251	256	261	266	
gag ttt ggg ctt gtt ttc cag agg aag agg aaa tct cgg cgt tac tac				1108
Glu Phe Gly Leu Val Phe Gln Arg Lys Arg Lys Ser Arg Arg Tyr Tyr				
267	272	277	282	
ccc aca cgc ctg gcc atc aat ctc tca tca ggt gtc tct gga gct ggg				1156
Pro Thr Arg Leu Ala Ile Asn Leu Ser Ser Gly Val Ser Gly Ala Gly				
283	288	293	298	
ggc act gtg cat cag cca ggt ttc att gtc gtg gaa acc aat tac cga				1204
Gly Thr Val His Gln Pro Gly Phe Ile Val Val Glu Thr Asn Tyr Arg				
299	304	309	314	
ctg tat gcc tac acg gag tcg gag ctg cag att gcc ctc att gcc ctc				1252
Leu Tyr Ala Tyr Thr Glu Ser Glu Leu Gln Ile Ala Leu Ile Ala Leu				
315	320	325	330	
ttc tct gag atg ctc tat cgg ttc ccc aac atg gtg gtg gcg cag gtg				1300
Phe Ser Glu Met Leu Tyr Arg Phe Pro Asn Met Val Val Ala Gln Val				
331	336	341	346	
acc cgg gag agt gtg cag cag gca atc gcc agt ggc atc aca gcc cag				1348
Thr Arg Glu Ser Val Gln Gln Ala Ile Ala Ser Gly Ile Thr Ala Gln				
347	352	357	362	
cag ata atc cat ttc cta agg aca aga gcc cac cca gtg atg ctc aaa				1396
Gln Ile Ile His Phe Leu Arg Thr Arg Ala His Pro Val Met Leu Lys				
363	368	373	378	
cag aca cct gtg ctg ccc ccc acc atc acc gac cag atc cgg ctc tgg				1444
Gln Thr Pro Val Leu Pro Pro Thr Ile Thr Asp Gln Ile Arg Leu Trp				
379	384	389	394	

gag ctg gaa agg gac aga ctc cgg ttc act gag ggt gtc ctg tat aac 1492
 Glu Leu Glu Arg Asp Arg Leu Arg Phe Thr Glu Gly Val Leu Tyr Asn
 395 400 405 410

cag ttc ctg tcg caa gtg gac ttt gag ctg ctg ctg gcc cac gcg cgg 1540
 Gln Phe Leu Ser Gln Val Asp Phe Glu Leu Leu Ala His Ala Arg
 411 416 421 426

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 Glu Leu Gly Val Leu Val Phe Glu Asn Ser Ala Lys Arg Leu Met Val
 427 432 437 442

gtg acc ccg gcc ggg cac agc gac gtc aag cgc ttt tgg aag cgg cag 1636
 Val Thr Pro Ala Gly His Ser Asp Val Lys Arg Phe Trp Lys Arg Gln
 443 448 453 458

aaa cat agc tcc tga gagcgcggga cttggacacg gacctcggcg ggcgggagct 1691
 Lys His Ser Ser *
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ttaataaagt tatgatagct agcaaaaaaa aaaaa 1786

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gcc act caa ggt ctt ggc tcc aac caa aac gct ttg aag tac ttg ggc 97
 Ala Thr Gln Gly Leu Gly Ser Asn Gln Asn Ala Leu Lys Tyr Leu Gly
 14 19 24 29

cag gat ttc aag acc ctg agg caa cag tgc ttg gac tca ggg gtc cta 145
 Gln Asp Phe Lys Thr Leu Arg Gln Gln Cys Leu Asp Ser Gly Val Leu
 30 35 40 45

ttt aag gac cct gag ttc cca gca tgt cca tca gct ttg ggc tac aag 193
 Phe Lys Asp Pro Glu Phe Pro Ala Cys Pro Ser Ala Leu Gly Tyr Lys
 46 51 56 61

gat ctt gga cca ggc tct ccg caa act caa ggc atc atc tgg aag cgg 241
 Asp Leu Gly Pro Gly Ser Pro Gln Thr Gln Gly Ile Ile Trp Lys Arg
 62 67 72 77

ccc acg gag ttg tgt ccc agc cct cag ttt atc gtt ggt gga gcc acg	289
Pro Thr Glu Leu Cys Pro Ser Pro Gln Phe Ile Val Gly Gly Ala Thr	
78 83 88 93	
cgc aca gac att tgt cag ggt ggt cta ggt gac tgc tgg ctt ctg gct	337
Arg Thr Asp Ile Cys Gln Gly Gly Leu Gly Asp Cys Trp Leu Leu Ala	
94 99 104 109	
gcc att gcc tcc ctg acc ctg aat gaa gag ctg ctt tac cgg gtg gtc	385
Ala Ile Ala Ser Leu Thr Leu Asn Glu Glu Leu Leu Tyr Arg Val Val	
110 115 120 125	
ccc agg gac cag gac ttc cag gag aac tat gcg gga atc ttt cac ttt	433
Pro Arg Asp Gln Asp Phe Gln Glu Asn Tyr Ala Gly Ile Phe His Phe	
126 131 136 141	
cag ttc tgg cag tac gga gag tgg gtg gag gtg gtc att gac gac agg	481
Gln Phe Trp Gln Tyr Gly Glu Trp Val Glu Val Val Ile Asp Asp Arg	
142 147 152 157	
ctg ccc acc aag aat gga cag ctg ctc ttc cta cac tcg gaa caa ggc	529
Leu Pro Thr Lys Asn Gly Gln Leu Leu Phe Leu His Ser Glu Gln Gly	
158 163 168 173	
aat gaa ttc tgg agt gcc ctg ctg gag aaa gcc tat gcc aag ctt aat	577
Asn Glu Phe Trp Ser Ala Leu Leu Glu Lys Ala Tyr Ala Lys Leu Asn	
174 179 184 189	
ggt tgt tat gag gct ctc gct gga ggt tcc aca gtg gag ggg ttt gag	625
Gly Cys Tyr Glu Ala Leu Ala Gly Gly Ser Thr Val Glu Gly Phe Glu	
190 195 200 205	
gat ttc aca ggt ggc atc tct gag ttt tat gac ctg aag aaa cca cca	673
Asp Phe Thr Gly Gly Ile Ser Glu Phe Tyr Asp Leu Lys Lys Pro Pro	
206 211 216 221	
gcc aat cta tat cag atc atc cgg aag gcc ctc tgt gcg ggg tct ctg	721
Ala Asn Leu Tyr Gln Ile Ile Arg Lys Ala Leu Cys Ala Gly Ser Leu	
222 227 232 237	
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Leu Gly Cys Ser Ile Asp Val Tyr Ser Ala Ala Glu Ala Glu Ala Ile	
238 243 248 253	
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Glu Glu Val Asn Phe Gln Gly His Pro Glu Lys Leu Ile Arg Leu Arg	
270 275 280 285	
aat cca tgg ggt gaa gtg gag tgg tcg gga gcc tgg agc gat gag tag	913
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Thr Cys Ser Val Pro Trp Val Cys Glu Gln Gly Thr Pro Pro Ile Phe	
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Val Val Leu Ala Val Gly Val Val Ala Val Lys Ile Leu Leu Leu Cys	
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Leu Cys Leu Ile Ile Leu Ser Phe His Lys Lys Lys Ala Val Arg Ala	
234 239 244 249	
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Val Glu Val Glu Glu Asn Val Tyr Ala Val Met Gly *	
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 ggactcgccg ccccgggact cgcgcagccc gcagcgctcc ggctcctcct ctcgcgaccg 240
 ccctccgcag cg atg gac gga gac ggt gac cca gag agc gtg ggc cag 288
 Met Asp Gly Asp Gly Asp Pro Glu Ser Val Gly Gln
 1 5 10
 ccc gag gag gca agc ccg gag gag cag cca gag gag gcg agt gct gag 336
 Pro Glu Glu Ala Ser Pro Glu Glu Gln Pro Glu Glu Ala Ser Ala Glu
 13 18 23 28
 gag gag cgg ccg gag gac cag cag gag gag gag gcg gcc gcc gcc gcg 384
 Glu Glu Arg Pro Glu Asp Gln Gln Glu Glu Glu Ala Ala Ala Ala Ala
 29 34 39 44
 tac ctg gac gag ctg ccc gag ccg ctg ctg ctg cgc gtg ctg gcc gca 432
 Tyr Leu Asp Glu Leu Pro Glu Pro Leu Leu Leu Arg Val Leu Ala Ala
 45 50 55 60
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 Leu Pro Ala Ala Glu Leu Val Gln Ala Cys Arg Leu Val Cys Leu Arg
 61 66 71 76
 tgg aag gag ctg gtg gac ggc gcc ccg ctg tgg ctg ctc aag tgc cag 528
 Trp Lys Glu Leu Val Asp Gly Ala Pro Leu Trp Leu Leu Lys Cys Gln
 77 82 87 92
 cag gag ggg ctg gtg ccc gag ggc ggc gtg gag gag gag cgc gac cac 576
 Gln Glu Gly Leu Val Pro Glu Gly Gly Val Glu Glu Glu Arg Asp His
 93 98 103 108
 tgg cag cag ttc tac ttc ctg agc aag cgg cgc cgc aac ctt ctg cgt 624
 Trp Gln Gln Phe Tyr Phe Leu Ser Lys Arg Arg Arg Asn Leu Leu Arg
 109 114 119 124
 aac ccg tgt ggg gaa gag gac ttg gaa ggc tgg tgt gac gtg gag cat 672
 Asn Pro Cys Gly Glu Glu Asp Leu Glu Gly Trp Cys Asp Val Glu His
 125 130 135 140
 ggt ggg gac ggc tgg agg gtg gag gag ctg cct gga gac agt ggg gtg 720

Gly Gly Asp Gly Trp Arg Val Glu Glu Leu Pro Gly Asp Ser Gly Val	
141 146 151 156	
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Glu Phe Thr His Asp Glu Ser Val Lys Lys Tyr Phe Ala Ser Ser Phe	
157 162 167 172	
gag tgg tgt cgc aaa gca cag gtc att gac ctg cag gct gag ggc tac	816
Glu Trp Cys Arg Lys Ala Gln Val Ile Asp Leu Gln Ala Glu Gly Tyr	
173 178 183 188	
tgg gag gag ctg ctg gac acg act cag ccg gcc atc gtg gtg aag gac	864
Trp Glu Glu Leu Leu Asp Thr Thr Gln Pro Ala Ile Val Val Lys Asp	
189 194 199 204	
tgg tac tcg ggc cgc agc gac gct ggt tgc ctc tac gag ctc acc gtt	912
Trp Tyr Ser Gly Arg Ser Asp Ala Gly Cys Leu Tyr Glu Leu Thr Val	
205 210 215 220	
aag cta ctg tcc gag cac gag aac gtg ctg gct gag ttc agc agc ggg	960
Lys Leu Leu Ser Glu His Glu Asn Val Leu Ala Glu Phe Ser Ser Gly	
221 226 231 236	
cag gtg gca gtg ccc caa gac agt gac ggc ggc tgg atg gag atc	1008
Gln Val Ala Val Pro Gln Asp Ser Asp Gly Gly Gly Trp Met Glu Ile	
237 242 247 252	
tcc cac acc ttc acc gac tac ggg ccg ggc gtc cgc ttc gtc cgc ttc	1056
Ser His Thr Phe Thr Asp Tyr Gly Pro Gly Val Arg Phe Val Arg Phe	
253 258 263 268	
gag cac ggg ggg cag gac tcc gtc tac tgg aag ggc tgg ttc ggg gcc	1104
Glu His Gly Gly Gln Asp Ser Val Tyr Trp Lys Gly Trp Phe Gly Ala	
269 274 279 284	
cgg gtg acc aac agc agc gtg tgg gta gaa ccc tga gcga ccctgcctcc	1154
Arg Val Thr Asn Ser Ser Val Trp Val Glu Pro *	
285 290 295	
gctctcccc agctgcctgg aggggcaaag gtcgagggtg gataggcctt aacttagtcc	1214
atagcgctct cacttcccc aagccacaca tctctctccc atcccttgct ccgatcccag	1274
ccctgagca gggagagaga agttttgttg gcataggttt gcttaggtag ccggcttcta	1334
gaatgtagat ccgtgagggc gtgagcttgg actggaccca ctgctgattc cctgcaccta	1394
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gtccacagcg ggacgtgagt ctcttcctcc tcgcggctta ccgctctctc cgcttagtgc      240
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cagagagtag ctttgcctct ataacggcgc gagagtgaga cgtcatcggt gagcgactaa      360
cgctagaaac agtggtgcgc ggagaggaga ggccctcggg  atg tct ctg gca gat      414
                                                Met Ser Leu Ala Asp
                                                1

gag ctc tta gct gat ctc gaa gag gca gca gaa gag gag gaa gga gga      462
Glu Leu Leu Ala Asp Leu Glu Glu Ala Ala Glu Glu Glu Glu Gly Gly
  6              11              16              21

agc tat ggg gag gaa gaa gag gag cca gcg atc gag gat gtg cag gag      510
Ser Tyr Gly Glu Glu Glu Glu Glu Pro Ala Ile Glu Asp Val Gln Glu
  22              27              32              37

gag aca cag ctg gat ctt tcc ggg gat tca gtc aag acc atc gcc aag      558
Glu Thr Gln Leu Asp Leu Ser Gly Asp Ser Val Lys Thr Ile Ala Lys
  38              43              48              53

cta tgg gat agt aag atg ttt gct gag att atg atg aag att gag gag      606
Leu Trp Asp Ser Lys Met Phe Ala Glu Ile Met Met Lys Ile Glu Glu
  54              59              64              69

tat atc agc aag caa gcc aaa gct tca gaa gtg atg gga cca gtg gag      654
Tyr Ile Ser Lys Gln Ala Lys Ala Ser Glu Val Met Gly Pro Val Glu
  70              75              80              85

gcc gcg cct gaa tac cgc gtc atc gtg gat gcc aac aac ctg acc gtg      702
Ala Ala Pro Glu Tyr Arg Val Ile Val Asp Ala Asn Asn Leu Thr Val
  86              91              96              101

gag atc gaa aac gag ctg aac atc atc cat aag ttc atc cgg gat aag      750
Glu Ile Glu Asn Glu Leu Asn Ile Ile His Lys Phe Ile Arg Asp Lys
  102              107              112              117

tac tca aag aga ttc cct gaa ctg gag tcc ttg gtc ccc aat gca ctg      798
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Tyr	Ser	Lys	Arg	Phe	Pro	Glu	Leu	Glu	Ser	Leu	Val	Pro	Asn	Ala	Leu		
118					123					128					133		
gat	tac	atc	cgc	acg	gtc	aag	gag	ctg	ggc	aac	agc	ctg	gac	aag	tgc		846
Asp	Tyr	Ile	Arg	Thr	Val	Lys	Glu	Leu	Gly	Asn	Ser	Leu	Asp	Lys	Cys		
134					139					144					149		
aag	aac	aat	gag	aac	ctg	cag	cag	atc	ctc	acc	aat	gcc	acc	atc	atg		894
Lys	Asn	Asn	Glu	Asn	Leu	Gln	Gln	Ile	Leu	Thr	Asn	Ala	Thr	Ile	Met		
150					155					160					165		
gtc	gtc	agc	gtc	acc	gcc	tcc	acc	acc	cag	ggg	cag	cag	ctg	tcg	gag		942
Val	Val	Ser	Val	Thr	Ala	Ser	Thr	Thr	Gln	Gly	Gln	Gln	Leu	Ser	Glu		
166					171					176					181		
gag	gag	ctg	gag	cgg	ctg	gag	gag	gcc	tgc	gac	atg	gcg	ctg	gag	ctg		990
Glu	Glu	Leu	Glu	Arg	Leu	Glu	Glu	Ala	Cys	Asp	Met	Ala	Leu	Glu	Leu		
182					187					192					197		
aac	gcc	tcc	aag	cac	cgc	atc	tac	gag	tat	gtg	gag	tcc	cgg	atg	tcc		1038
Asn	Ala	Ser	Lys	His	Arg	Ile	Tyr	Glu	Tyr	Val	Glu	Ser	Arg	Met	Ser		
198					203					208					213		
ttc	atc	gca	ccc	aac	ctg	tcc	atc	att	atc	ggg	gca	tcc	acg	gcc	gcc		1086
Phe	Ile	Ala	Pro	Asn	Leu	Ser	Ile	Ile	Ile	Gly	Ala	Ser	Thr	Ala	Ala		
214					219					224					229		
aag	atc	atg	ggt	gtg	gcc	ggc	ggc	ctg	acc	aac	ctc	tcc	aag	atg	ccc		1134
Lys	Ile	Met	Gly	Val	Ala	Gly	Gly	Leu	Thr	Asn	Leu	Ser	Lys	Met	Pro		
230					235					240					245		
gcc	tgc	aac	atc	atg	ctg	ctc	ggg	gcc	cag	cgc	aag	acg	ctg	tcg	ggc		1182
Ala	Cys	Asn	Ile	Met	Leu	Leu	Gly	Ala	Gln	Arg	Lys	Thr	Leu	Ser	Gly		
246					251					256					261		
ttc	tcg	tct	acc	tca	gtg	ctg	ccc	cac	acc	ggc	tac	atc	tac	cac	agt		1230
Phe	Ser	Ser	Thr	Ser	Val	Leu	Pro	His	Thr	Gly	Tyr	Ile	Tyr	His	Ser		
262					267					272					277		
gac	atc	gtg	cag	tcc	ctg	cca	ccg	gat	ctg	cgg	cgg	aaa	gcg	gcc	cgg		1278
Asp	Ile	Val	Gln	Ser	Leu	Pro	Pro	Asp	Leu	Arg	Arg	Lys	Ala	Ala	Arg		
278					283					288					293		
ctg	gtg	gcc	gcc	aag	tgc	aca	ctg	gca	gcc	cgt	gtg	gac	agt	ttc	cac		1326
Leu	Val	Ala	Ala	Lys	Cys	Thr	Leu	Ala	Ala	Arg	Val	Asp	Ser	Phe	His		
294					299					304					309		
gag	agc	aca	gaa	ggg	aag	gtg	ggc	tac	gaa	ctg	aag	gat	gag	atc	gag		1374
Glu	Ser	Thr	Glu	Gly	Lys	Val	Gly	Tyr	Glu	Leu	Lys	Asp	Glu	Ile	Glu		
310					315					320					325		
cgc	aaa	ttc	gac	aag	tgg	cag	gag	ccg	ccg	cct	gtg	aag	cag	gtg	aag		1422
Arg	Lys	Phe	Asp	Lys	Trp	Gln	Glu	Pro	Pro	Pro	Val	Lys	Gln	Val	Lys		
326					331					336					341		
ccg	ctg	cct	gcg	ccc	ctg	gat	gga	cag	cgg	aag	aag	cga	ggc	ggc	cgc		1470
Pro	Leu	Pro	Ala	Pro	Leu	Asp	Gly	Gln	Arg	Lys	Lys	Arg	Gly	Gly	Arg		

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 <222> (1) ... (2275)
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tttcttcttg tctcgacgcc ccgtgtcacg gccacagcga ttctctgctt agcaggatcg      180
gtccacagcg ggacgtgagt ctcttctctc tcgcggttta ccgctctctc cgcctagtgc      240
caggtgctaa taaagttggt gtttcaaata cggccaggaa catcgcgagc ggggaccaat      300
cagagagtag ctttgccctc ataacggcgc gagagtgaga cgtcatcggt gagcgactaa      360
cgctagaaac agtggtgcgc ggagaggaga ggcctcggg   atg tct ctg gca gat      414
                                         Met Ser Leu Ala Asp
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gag ctc tta gct gat ctc gaa gag gca gca gaa gag gag gaa gga gga      462
Glu Leu Leu Ala Asp Leu Glu Glu Ala Ala Glu Glu Glu Glu Gly Gly
   6              11              16              21

agc tat ggg gag gaa gaa gag gag cca gcg atc gag gat gtg cag gag      510
Ser Tyr Gly Glu Glu Glu Glu Glu Pro Ala Ile Glu Asp Val Gln Glu
  22              27              32              37

gag aca cag ctg gat ctt tcc ggg gat tca gtc aag acc atc gcc aag      558
Glu Thr Gln Leu Asp Leu Ser Gly Asp Ser Val Lys Thr Ile Ala Lys
  38              43              48              53

cta tgg gat agt aag atg ttt gct gag att atg atg aag att gag gag      606
Leu Trp Asp Ser Lys Met Phe Ala Glu Ile Met Met Lys Ile Glu Glu
  54              59              64              69

tat atc agc aag caa gcc aaa gct tca gaa gtg atg gga cca gtg gag      654
Tyr Ile Ser Lys Gln Ala Lys Ala Ser Glu Val Met Gly Pro Val Glu
  70              75              80              85

gcc gcg cct gaa tac cgc gtc atc gtg gat gcc aac aac ctg acc gtg      702
Ala Ala Pro Glu Tyr Arg Val Ile Val Asp Ala Asn Asn Leu Thr Val
  86              91              96              101

gag atc gaa aac gag ctg aac atc atc cat aag ttc atc cgg gat aag      750
Glu Ile Glu Asn Glu Leu Asn Ile Ile His Lys Phe Ile Arg Asp Lys
 102              107              112              117

tac tca aag aga ttc cct gaa ctg gag tcc ttg gtc ccc aat gca ctg      798
Tyr Ser Lys Arg Phe Pro Glu Leu Glu Ser Leu Val Pro Asn Ala Leu
 118              123              128              133

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gat tac atc cgc acg gtc aag gag ctg ggc aac agc ctg gac aag tgc	846
Asp Tyr Ile Arg Thr Val Lys Glu Leu Gly Asn Ser Leu Asp Lys Cys	
134 139 144 149	
aag aac aat gag aac ctg cag cag atc ctc acc aat gcc acc atc atg	894
Lys Asn Asn Glu Asn Leu Gln Gln Ile Leu Thr Asn Ala Thr Ile Met	
150 155 160 165	
gtc gtc agc gtc acc gcc tcc acc acc cag ggg cag cag ctg tcg gag	942
Val Val Ser Val Thr Ala Ser Thr Thr Gln Gly Gln Gln Leu Ser Glu	
166 171 176 181	
gag gag ctg gag cgg ctg gag gag gcc tgc gac atg gcg ctg gag ctg	990
Glu Glu Leu Glu Arg Leu Glu Glu Ala Cys Asp Met ³ Ala Leu Glu Leu	
182 187 192 197	
aac gcc tcc aag cac cgc atc tac gag tat gtg gag tcc cgg atg tcc	1038
Asn Ala Ser Lys His Arg Ile Tyr Glu Tyr Val Glu Ser Arg Met Ser	
198 203 208 213	
ttc atc gca ccc aac ctg tcc atc att atc ggg gca tcc acg gcc gcc	1086
Phe Ile Ala Pro Asn Leu Ser Ile Ile Ile Gly Ala Ser Thr Ala Ala	
214 219 224 229	
aag atc atg ggt gtg gcc ggc ggc ctg acc aac ctc tcc aag atg ccc	1134
Lys Ile Met Gly Val Ala Gly Gly Leu Thr Asn Leu Ser Lys Met Pro	
230 235 240 245	
gcc tgc aac atc atg ctg ctc ggg gcc cag cgc aag acg ctg tcg ggc	1182
Ala Cys Asn Ile Met Leu Leu Gly Ala Gln Arg Lys Thr Leu Ser Gly	
246 251 256 261	
ttc tcg tct acc tca gtg ctg ccc cac acc ggc tac atc tac cac agt	1230
Phe Ser Ser Thr Ser Val Leu Pro His Thr Gly Tyr Ile Tyr His Ser	
262 267 272 277	
gac atc gtg cag tcc ctg cca ccg gat ctg cgg cgg aaa gcg gcc cgg	1278
Asp Ile Val Gln Ser Leu Pro Pro Asp Leu Arg Arg Lys Ala Ala Arg	
278 283 288 293	
ctg gtg gcc gcc aag tgc aca ctg gca gcc cgt gtg gac agt ttc cac	1326
Leu Val Ala Ala Lys Cys Thr Leu Ala Ala Arg Val Asp Ser Phe His	
294 299 304 309	
gag agc aca gaa ggg aag gtg ggc tac gaa ctg aag gat gag atc gag	1374
Glu Ser Thr Glu Gly Lys Val Gly Tyr Glu Leu Lys Asp Glu Ile Glu	
310 315 320 325	
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Arg Lys Phe Asp Lys Trp Gln Glu Pro Pro Pro Val Lys Gln Val Lys	
326 331 336 341	
ccg ctg cct gcg ccc ctg gat gga cag cgg aag aag cga ggc ggc cgc	1470
Pro Leu Pro Ala Pro Leu Asp Gly Gln Arg Lys Lys Arg Gly Gly Arg	
342 347 352 357	
agg tac cgc aag atg aag gag cgg ctg ggg ctg acg gag atc cgg aag	1518

Arg Tyr Arg Lys Met Lys Glu Arg Leu Gly Leu Thr Glu Ile Arg Lys	
358 363 368 373	
cag gcc aac cgt atg agc ttc gga gag atc gag gag gac gcc tac cag	1566
Gln Ala Asn Arg Met Ser Phe Gly Glu Ile Glu Glu Asp Ala Tyr Gln	
374 379 384 389	
gag gac ctg gga ttc agc ctg ggc cac ctg ggc aag tgc ggc agt ggg	1614
Glu Asp Leu Gly Phe Ser Leu Gly His Leu Gly Lys Ser Gly Ser Gly	
390 395 400 405	
cgt gtg cgg cag aca cag gta aac gag gcc acc aag gcc agg atc tcc	1662
Arg Val Arg Gln Thr Gln Val Asn Glu Ala Thr Lys Ala Arg Ile Ser	
406 411 416 421	
aag acg ctg cag gta tgg gcc aga ccc agg tgg ggc tgg gag acc gag	1710
Lys Thr Leu Gln Val Trp Ala Arg Pro Arg Trp Gly Trp Glu Thr Glu	
422 427 432 437	
gga cac aag gtg ggg gga gcc cag atc gca gcc tcc ctg tcc tcc cca	1758
Gly His Lys Val Gly Gly Ala Gln Ile Ala Ala Ser Leu Ser Ser Pro	
438 443 448 453	
cag cgg acc ctg cag aag cag agc gtc gta tat ggc ggg aag tcc acc	1806
Gln Arg Thr Leu Gln Lys Gln Ser Val Val Tyr Gly Gly Lys Ser Thr	
454 459 464 469	
atc cgc gac cgc tcc tgc ggc acg gcc tcc agc gtg gcc ttc acc cca	1854
Ile Arg Asp Arg Ser Ser Gly Thr Ala Ser Ser Val Ala Phe Thr Pro	
470 475 480 485	
ctc cag ggc ctg gag att gtg aac cca cag gcg gca gag aag aag gtg	1902
Leu Gln Gly Leu Glu Ile Val Asn Pro Gln Ala Ala Glu Lys Lys Val	
486 491 496 501	
gct gag gcc aac cag aag tat ttc tcc agc atg gct gag ttc ctc aag	1950
Ala Glu Ala Asn Gln Lys Tyr Phe Ser Ser Met Ala Glu Phe Leu Lys	
502 507 512 517	
gtc aag ggc gag aag agt ggc ctt atg tcc acc tga atga ctgcgtgtgt	2000
Val Lys Gly Glu Lys Ser Gly Leu Met Ser Thr *	
518 523 528	
ccaaggtggc ttcccactga agggacacag aggtccagtc cttctgaagg gctaggatcg	2060
ggttctggca gggagaacct gccctgccac tggccccatt gctgggactg cccagggagg	2120
aggccttggga agagtccggc ctggcctccc ccaggaccga gatcaccgcc cagtatgggc	2180
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<220>
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 <222> (115)..(1455)

<400> 411

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	Met
	1
gcg gcg cgc aag ggt cgg cgt cgc acg tgt gaa acc ggg gaa ccc atg	165
Ala Ala Arg Lys Gly Arg Arg Arg Thr Cys Glu Thr Gly Glu Pro Met	
2 7 12 17	
gaa gcc gag tcc ggc gac aca agt tcc gag ggc ccg gcc cag gtc tac	213
Glu Ala Glu Ser Gly Asp Thr Ser Ser Glu Gly Pro Ala Gln Val Tyr	
18 23 28 33	
ctg ccc ggc cgg ggg ccg ccg cta cgc gaa ggg gag gag ctg gtc atg	261
Leu Pro Gly Arg Gly Pro Pro Leu Arg Glu Gly Glu Glu Leu Val Met	
34 39 44 49	
gac gag gag gcc tat gtg ctc tac cac cga gcg cag act ggc gcc ccc	309
Asp Glu Glu Ala Tyr Val Leu Tyr His Arg Ala Gln Thr Gly Ala Pro	
50 55 60 65	
tgt ctc agc ttt gac ata gtc cgg gat cac ctg gga gac aac cgg aca	357
Cys Leu Ser Phe Asp Ile Val Arg Asp His Leu Gly Asp Asn Arg Thr	
66 71 76 81	
gag ctt cct ctt aca ctt tac ttg tgt gct ggg acc cag gct gag agc	405
Glu Leu Pro Leu Thr Leu Tyr Leu Cys Ala Gly Thr Gln Ala Glu Ser	
82 87 92 97	
gcc cag agc aac aga ctg atg atg ctt cgg atg cac aat ctg cat ggg	453
Ala Gln Ser Asn Arg Leu Met Met Leu Arg Met His Asn Leu His Gly	
98 103 108 113	
aca aag ccc cca ccc tca gag ggc agt gat gaa gaa gaa gag gag gaa	501
Thr Lys Pro Pro Pro Ser Glu Gly Ser Asp Glu Glu Glu Glu Glu Glu	
114 119 124 129	
gat gaa gag gat gaa gaa gag cgg aaa cct cag ctg gag ctg gcc atg	549
Asp Glu Glu Asp Glu Glu Glu Arg Lys Pro Gln Leu Glu Leu Ala Met	
130 135 140 145	
gtg ccc cac tat ggt ggc atc aac cga gtt cgg gtg tca tgg ctg ggt	597
Val Pro His Tyr Gly Gly Ile Asn Arg Val Arg Val Ser Trp Leu Gly	
146 151 156 161	
gaa gag cct gtg gct ggg gtg tgg tca gag aag ggc cag gtg gag gtg	645
Glu Glu Pro Val Ala Gly Val Trp Ser Glu Lys Gly Gln Val Glu Val	

162	167	172	177	
ttt gcg ctg cgg cgg ctt ctg cag gtg gtg gag gag ccc cag gcc ctg				693
Phe Ala Leu Arg Arg Leu Leu Gln Val Val Glu Glu Pro Gln Ala Leu				
178	183	188	193	
gca gcc ttc ctc cgg gat gag cag gcc caa atg aag ccc atc ttc tcc				741
Ala Ala Phe Leu Arg Asp Glu Gln Ala Gln Met Lys Pro Ile Phe Ser				
194	199	204	209	
ttc gct gga cac atg ggc gag ggc ttt gcc ctt gac tgg tcc ccc cgg				789
Phe Ala Gly His Met Gly Glu Gly Phe Ala Leu Asp Trp Ser Pro Arg				
210	215	220	225	
gtg acc ggt cgc ctg ctg acc ggt gac tgt caa aag aac atc cac ctc				837
Val Thr Gly Arg Leu Leu Thr Gly Asp Cys Gln Lys Asn Ile His Leu				
226	231	236	241	
tgg aca cct acg gac ggc ggc tcc tgg cac gtg gac cag cgg cca ttc				885
Trp Thr Pro Thr Asp Gly Gly Ser Trp His Val Asp Gln Arg Pro Phe				
242	247	252	257	
gtg ggc cac aca cgc tct gtg gag gac ctg cag tgg tca ccg act gag				933
Val Gly His Thr Arg Ser Val Glu Asp Leu Gln Trp Ser Pro Thr Glu				
258	263	268	273	
aac acg gtg ttt gcc tcc tgc tca gct gac gcc tcc atc cgc atc tgg				981
Asn Thr Val Phe Ala Ser Cys Ser Ala Asp Ala Ser Ile Arg Ile Trp				
274	279	284	289	
gac atc cgg gca gcc ccc agc aag gcc tgc atg ctc acc aca gcc acc				1029
Asp Ile Arg Ala Ala Pro Ser Lys Ala Cys Met Leu Thr Thr Ala Thr				
290	295	300	305	
gcc cat gat ggg gac gtc aat gtc atc agc tgg agc cgc cgg gag ccc				1077
Ala His Asp Gly Asp Val Asn Val Ile Ser Trp Ser Arg Arg Glu Pro				
306	311	316	321	
ttc ctg ctc agt ggc ggg gat gat ggg gcc ctc aag atc tgg gac ctt				1125
Phe Leu Leu Ser Gly Gly Asp Asp Gly Ala Leu Lys Ile Trp Asp Leu				
322	327	332	337	
cgg cag ttc aag tct ggt tcc cca gtg gcc acc ttc aag cag cac gtg				1173
Arg Gln Phe Lys Ser Gly Ser Pro Val Ala Thr Phe Lys Gln His Val				
338	343	348	353	
gcc ccc gtg acc tcc gtc gag tgg cac ccc cag gac agc ggg gtc ttt				1221
Ala Pro Val Thr Ser Val Glu Trp His Pro Gln Asp Ser Gly Val Phe				
354	359	364	369	
gca gcc tcg ggt gca gac cac cag atc aca cag tgg gac ctg gca gtg				1269
Ala Ala Ser Gly Ala Asp His Gln Ile Thr Gln Trp Asp Leu Ala Val				
370	375	380	385	
gag cgg gac cct gag gcg ggc gac gtg gag gcc gac ccc gga ctg gcc				1317
Glu Arg Asp Pro Glu Ala Gly Asp Val Glu Ala Asp Pro Gly Leu Ala				
386	391	396	401	

aagggaccag gccgccgtcc ccagcgagag gcatgcagcg ctgaggagcg gcgaccacgc	120
acggcggcgc c atg aac ctc ctg ccg tgt aac cct cac ggc aac ggg ctg	170
Met Asn Leu Leu Pro Cys Asn Pro His Gly Asn Gly Leu	
1 5 10	
ctc tac gcc ggc ttc aac cag gac cac gga tgc ttt gcg tgt ggg atg	218
Leu Tyr Ala Gly Phe Asn Gln Asp His Gly Cys Phe Ala Cys Gly Met	
14 19 24 29	
gaa aat gga ttc cga gtc tat aac act gat cca cta aaa gaa aaa gag	266
Glu Asn Gly Phe Arg Val Tyr Asn Thr Asp Pro Leu Lys Glu Lys Glu	
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aaa caa gaa ttt cta gaa gga gga gtt ggc cat gtt gaa atg tta ttt	314
Lys Gln Glu Phe Leu Glu Gly Gly Val Gly His Val Glu Met Leu Phe	
46 51 56 61	
cgc tgc aac tat tta gct tta gtt ggt ggt gga aaa aag ccg aaa tac	362
Arg Cys Asn Tyr Leu Ala Leu Val Gly Gly Gly Lys Lys Pro Lys Tyr	
62 67 72 77	
cct ccc aac aaa gta atg atc tgg gat gac ctg aag aag aag act gtt	410
Pro Pro Asn Lys Val Met Ile Trp Asp Asp Leu Lys Lys Lys Thr Val	
78 83 88 93	
att gaa ata gaa ttt tct aca gaa gtc aag gca gtc aag ctg cgg cga	458
Ile Glu Ile Glu Phe Ser Thr Glu Val Lys Ala Val Lys Leu Arg Arg	
94 99 104 109	
gat aga att gtg gtg gtt ttg gac tcc atg att aag gtg ttc aca ttc	506
Asp Arg Ile Val Val Val Leu Asp Ser Met Ile Lys Val Phe Thr Phe	
110 115 120 125	
aca cac aat ccc cat cag ttg cac gtc ttc gaa acc tgc tat aac ccc	554
Thr His Asn Pro His Gln Leu His Val Phe Glu Thr Cys Tyr Asn Pro	
126 131 136 141	
aaa ggc ctc tgt gtc ctt tgt ccc aat agt aac aac tcc ctc ctg gcc	602
Lys Gly Leu Cys Val Leu Cys Pro Asn Ser Asn Asn Ser Leu Leu Ala	
142 147 152 157	
ttt ccg ggc acg cac acg ggc cat gtg cag ctt gtg gac ctg gcc agc	650
Phe Pro Gly Thr His Thr Gly His Val Gln Leu Val Asp Leu Ala Ser	
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acg gag aag cca ccc gtg gac att cct gca cac gag ggt gtc ctg agc	698
Thr Glu Lys Pro Pro Val Asp Ile Pro Ala His Glu Gly Val Leu Ser	
174 179 184 189	
tgc att gca ctc aac ctg cag gga aca aga att gca act gca tcc gag	746
Cys Ile Ala Leu Asn Leu Gln Gly Thr Arg Ile Ala Thr Ala Ser Glu	
190 195 200 205	
aaa ggg acg ctt ata aga ata ttt gat act tca tca ggg cat tta atc	794
Lys Gly Thr Leu Ile Arg Ile Phe Asp Thr Ser Ser Gly His Leu Ile	

206	211	216	221	
cag gaa ctg cga aga gga tct caa gca gcc aat att tac tgc atc aac				842
Gln Glu Leu Arg Arg Gly Ser Gln Ala Ala Asn Ile Tyr Cys Ile Asn				
222	227	232	237	
ttc aat cag gat gcg tcc ctc atc tgc gta tcc agc gac cac ggc aca				890
Phe Asn Gln Asp Ala Ser Leu Ile Cys Val Ser Ser Asp His Gly Thr				
238	243	248	253	
gtg cat att ttt gca gct gaa gat cca aaa agg aat aaa cag tcc agt				938
Val His Ile Phe Ala Ala Glu Asp Pro Lys Arg Asn Lys Gln Ser Ser				
254	259	264	269	
ttg gcc tca gcc agt ttc ctt cca aaa tac ttc agt tcc aag tgg agt				986
Leu Ala Ser Ala Ser Phe Leu Pro Lys Tyr Phe Ser Ser Lys Trp Ser				
270	275	280	285	
ttc tcc aag ttt cag gtt ccc tca ggc tct ccg tgc att tgt gcc ttt				1034
Phe Ser Lys Phe Gln Val Pro Ser Gly Ser Pro Cys Ile Cys Ala Phe				
286	291	296	301	
gga aca gag cca aac gcc gtc att gca att tgt gca gac ggc agc tac				1082
Gly Thr Glu Pro Asn Ala Val Ile Ala Ile Cys Ala Asp Gly Ser Tyr				
302	307	312	317	
tac aaa ttc ctg ttc aac ccc aag ggg gag tgc atc cga gat gtc tac				1130
Tyr Lys Phe Leu Phe Asn Pro Lys Gly Glu Cys Ile Arg Asp Val Tyr				
318	323	328	333	
gcg cag ttt cta gag atg acc gat gac aag ctg tga ctcc agctgggggc				1180
Ala Gln Phe Leu Glu Met Thr Asp Asp Lys Leu *				
334	339	344		
gccacagcac ccaccacctg ccgccttcag actctcgggg ctggtgccag tgccccaggg				1240
gcctcctggg ccacgggctg gaggggctgc ccagggaacct tgggtctcgaa gccatacgtg				1300
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gtgcccgtga cgtcacctgt gcccgctgcgt ggcgtccccg tctccgttgg ggccattaga				1840
atgaggcaga caccaggcca ctctagaagc cgagccgtca cacctcaggc gtgtgcgggg				1900

Met Pro Cys Thr Cys Thr Trp Arg Asn Trp Arg
1 5

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tta tgt tgc tgt cca cca tgg gct atg gga gaa gta ttg ctg ttt agg Leu Cys Cys Cys Pro Pro Trp Ala Met Gly Glu Val Leu Leu Phe Arg 156 161 166 171	1129
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atc gtt gct tta atc tgt gag ctg ctt ggt ata tat gac gaa ggg aac Ile Val Ala Leu Ile Cys Glu Leu Leu Gly Ile Tyr Asp Glu Gly Asn 188 193 198 203	1225
ttt agc ttt tca aat gct tgg act tat ttg gtt ata ata aac aac atg Phe Ser Phe Ser Asn Ala Trp / Thr Tyr Leu Val Ile Ile Asn Asn Met 204 209 214 219	1273
tca cag ttg ttt gcc atg tat tgt ctc ctg ctc ttt tat aaa gta cta Ser Gln Leu Phe Ala Met Tyr Cys Leu Leu Leu Phe Tyr Lys Val Leu /	1321

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Thr Val Glu Ala Val	Ala Thr Gly Leu Gln	Asp Phe Ile Ile Cys	Ile	
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Pro Tyr Val Gln Glu	Ala Glu Glu Gly Ser	Cys Phe Asp Ser Phe	Leu	
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Ala Met Trp Asp Val	Ser Asp Ile Arg Asp	Asp Ile Ser Glu Gln	Val	
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Arg His Val Gly Arg	Thr Val Arg Gly His	Pro Arg Lys Lys Leu	Phe	
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ccc gag gat caa gat	caa aat gaa cat aca	agt tta tta tca tca	tca	1753
Pro Glu Asp Gln Asp	Gln Asn Glu His Thr	Ser Leu Leu Ser Ser	Ser	
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tca caa gat gca att	tcc att gct tct tct	atg cca cct tca ccc	atg	1801
Ser Gln Asp Ala Ile	Ser Ile Ala Ser Ser	Met Pro Pro Ser Pro	Met	
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Gly His Tyr Gln Gly	Phe Gly His Thr Val	Thr Pro Gln Thr Thr	Pro	
396	401	406	411	
acc aca gct aag ata	tct gat gaa atc ctt	agt gat act ata gga	gag	1897
Thr Thr Ala Lys Ile	Ser Asp Glu Ile Leu	Ser Asp Thr Ile Gly	Glu	
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Lys Lys Glu Pro Ser	Asp Lys Ser Val Asp	Ser *		
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Gln Gly His Arg Cys Leu Leu Ala Pro Val Ala Pro Lys Leu Val Pro
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Pro Val Arg Gly Val Lys Lys Gly Phe Arg Ala Ala Phe Arg Phe Gln
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Lys Glu Leu Glu Arg Gln Arg Leu Leu Arg Cys Pro Pro Pro Pro Val
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Arg Arg Ser Glu Lys Pro Asn Trp Asp Tyr His Ala Glu Ile Gln Ala
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Phe Gly His Arg Leu Gln Glu Asn Phe Ser Leu Asp Leu Leu Lys Thr
75 80 85 90
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Gln	Leu	Gly	Ile	Glu	Lys	Glu	Ala	Val	Leu	Leu	Asn	Leu	Lys	Ser	Asn	
107					112					117					122	
caa	gaa	cta	tcc	gaa	caa	ggg	aca	tct	ttt	tca	cag	act	tgc	ctt	aca	495
Gln	Glu	Leu	Ser	Glu	Gln	Gly	Thr	Ser	Phe	Ser	Gln	Thr	Cys	Leu	Thr	
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Gln	Phe	Leu	Glu	Asp	Glu	Tyr	Pro	Asp	Met	Pro	Thr	Glu	Gly	Ile	Lys	
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Asn	Leu	Val	Asp	Phe	Leu	Thr	Gly	Glu	Glu	Val	Val	Cys	His	Val	Ala	
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Pro	Pro	Ala	Val	Leu	Gln	Gln	Thr	Phe	Phe	Ala	Val	Ile	Gly	Ala	Leu	
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Glu	Gly	Pro	Gly	Glu	Thr	Val	Leu	Val	Ala	Glu	Glu	Glu	Ala	Ala	Arg	
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Val	Ala	Leu	Arg	Lys	Leu	Tyr	Gly	Phe	Thr	Glu	Asn	Arg	Arg	Pro	Trp	
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aac	tat	tcc	aag	ccc	aaa	gaa	acc	ttg	aga	gca	gaa	aag	agc	atc	act	1071
Asn	Tyr	Ser	Lys	Pro	Lys	Glu	Thr	Leu	Arg	Ala	Glu	Lys	Ser	Ile	Thr	

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Ser Ala Val Gly Gly Gly	Tyr Thr Ala Lys Lys	Thr Phe Asp Gln Trp		
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Lys Asp Met Ile Pro Asp	Leu Ser Glu Tyr Lys	Trp Ile Val Pro Asp		
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Ile Val Trp Glu Ile Asp	Glu Tyr Ile Asp Phe	Glu Lys Ile Arg Lys		
139	144	149	154	
gcc ctt cct aat tca gaa	gac ctt gta aag tta	gca cca gac ttt gac		771
Ala Leu Pro Asn Ser Glu	Asp Leu Val Lys Leu	Ala Pro Asp Phe Asp		
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Lys Ile Val Glu Ser Leu	Ser Leu Leu Lys Asp	Phe Phe Thr Ser Gly		
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Ser Pro Glu Glu Thr Ala	Phe Arg Ala Thr Asp	Arg Gly Ser Glu Ser		
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Asp Lys His Phe Arg Lys	Val Ser Asp Lys Glu	Lys Ile Asp Gln Leu		
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cag gaa gaa ctt ctg cac	act cag ttg aag tat	cag aga atc ttg gaa		963
Gln Glu Glu Leu Leu His	Thr Gln Leu Lys Tyr	Gln Arg Ile Leu Glu		
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Arg Leu Glu Lys Glu Asn	Lys Glu Leu Arg Lys	Leu Val Leu Gln Lys		
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Asp Asp Lys Gly Ile His	His Arg Lys Leu Lys	Lys Ser Leu Ile Asp		
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Met Tyr Ser Glu Val Leu	Asp Val Leu Ser Asp	Tyr Asp Ala Ser Tyr		
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Asn Thr Gln Asp His Leu	Pro Arg Val Val Val	Val Gly Asp Gln Ser		
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Ala Gly Lys Thr Ser Val	Leu Glu Met Ile Ala	Gln Ala Arg Ile Phe		
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Pro Arg Gly Ser Gly Glu	Met Met Thr Arg Ser	Pro Val Lys Val Thr		
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Ile Glu Leu Arg Met Arg Lys Asn Val Lys Glu Gly Cys Thr Val Ser	
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Ala Pro Asp Thr Lys Glu Thr Ile Phe Ser Ile Ser Lys Ala Tyr Met	
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Gln Asn Pro Asn Ala Ile Ile Leu Cys Ile Gln Asp Gly Ser Val Asp	
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Gly Arg Arg Thr Ile Phe Val Leu Thr Lys Val Asp Leu Ala Glu Lys	
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Phe Pro Met Lys Ala Leu Gly Tyr Phe Ala Val Val Thr Gly Lys Gly	
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 Met Gly Gly Arg Arg
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 Gly Pro Asn Arg Thr Ser Tyr Cys Arg Asn Pro Leu Cys Glu Pro Gly
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Pro Pro Leu Ala Thr Gln Thr Val Val Pro Leu Gln His Cys Lys Ile	
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Pro Glu Leu Pro Val Gln Ala Ser Ile Leu Phe Glu Leu Gln Leu Phe	
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Phe Cys Gln Leu Ile Ala Leu Phe Val His Tyr Ile Asn Ile Tyr Lys	
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Thr Val Trp Trp Tyr Pro Pro Ser His Pro Pro Ser His Thr Ser Leu	
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Leu Gly Arg Arg Phe Ile Gly Ser Ile Val Lys Glu Ala Ser Gln Arg	
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Gly Lys Val Ser Leu Phe Arg Ser Ile Leu Leu Phe Leu Thr Arg Phe	
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Trp Lys Gln His Thr Arg Gln Leu Tyr Gly Pro Asp Ala Met Pro Thr	
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Leu Lys Met Asp Phe Asn Trp Arg Met Lys Glu Val Leu Val Ser Ser	
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Gln Lys Val Asp Pro Ala Leu Cys Ser Asn Val Leu Gln His Pro Trp	
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Asn Val Tyr Lys Ala Val Gly His Tyr Asn Val Ala Ile Pro Ser Asp	
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Val Ser His Phe Arg Phe His Phe Phe Phe Ser Lys Pro Leu Arg Ile	
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Arg Leu Val Leu Gly Lys Ala Tyr Ser Tyr Ser Ala Ser Pro Gln Arg	
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486

491

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 Glu Ile Leu Arg Arg Gln Ile Arg Leu Leu Gln Gly Leu Ile Asp Asp
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 Tyr Lys Thr Leu His Gly Asn Ala Pro Ala Pro Gly Thr Pro Ala Ala
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 Ser Gly Trp Gln Pro Pro Thr Tyr His Ser Gly Arg Ala Phe Ser Ala
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 Arg Tyr Pro Arg Pro Ser Arg Arg Gly Tyr Ser Ser His His Gly Pro
 53 58 63 68

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 Gly Gln Pro Pro Val Pro Gln Gln His Val Leu Glu Arg Gln Val Gln
 101 106 111 116

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Gly Ser Val Gly Gly Pro Ala Arg Pro Ala Ser Gly Pro Arg Gln Ala	
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Arg Glu Ala Ser Leu Val Val Thr Cys Arg Thr Asn Lys Phe Arg Lys	
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Asn Asn Tyr Lys Trp Val Ala Ala Ser Ser Lys Ser Pro Arg Val Ala	
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Gln Ala Arg Gln Arg Arg Glu Lys Arg Lys Glu Tyr Cys Met Tyr Tyr	
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Lys Lys Thr Asp Gly Thr Cys Pro Phe Ser His His Val Ser Lys Glu	
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Lys Met Pro Val Cys Ser Tyr Phe Leu Lys Gly Ile Cys Ser Asn Ser	
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Asn Cys Pro Tyr Ser His Val Tyr Val Ser Arg Lys Ala Glu Val Cys	
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Lys His Thr Leu Leu Cys Pro Asp Phe Ala Arg Arg Gly Ala Cys Pro	
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Pro Leu Thr Lys Asp Ser Gly Lys Pro Leu His Ile Lys Pro Arg Leu				
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949				
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Glu Pro Glu Ala Lys Val Leu His Thr Lys Arg Leu Tyr Arg Ala Val	
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Arg Glu Leu Cys Val Lys Leu Met Phe Leu His Pro Val Asp Tyr Gly	
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Arg Lys Ala Glu Glu Leu Leu Trp Arg Lys Val Tyr Tyr Glu Val Ile	
76 81 86 91	
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Gln Leu Ile Lys Thr Asn Lys Lys His Ile His Ser Arg Ser Thr Leu	
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Glu Cys Ala Tyr Arg Thr His Leu Val Ala Gly Ile Gly Phe Tyr Gln	
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Cys Ile Asp Trp Thr His Val Thr Asp Pro Leu Ile Gly Cys Lys Lys	
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His Arg Cys Leu Val Tyr Leu Gly Asp Leu Ser Arg Tyr Gln Asn Glu	
172 177 182 187	

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Leu Ala Gly Val Asp Thr Glu Leu Leu Ala Glu Arg Phe Tyr Tyr Gln	
188 193 198 203	
gcc ctg tca gta gct cct cag att gga atg ccc ttc aat cag ctg ggc	795
Ala Leu Ser Val Ala Pro Gln Ile Gly Met Pro Phe Asn Gln Leu Gly	
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acc ctg gca ggc agc aag tac tat aat gtg gaa gcc atg tat tgc tac	843
Thr Leu Ala Gly Ser Lys Tyr Tyr Asn Val Glu Ala Met Tyr Cys Tyr	
220 225 230 235	
ctg cgc tgc atc cag tca gaa gtg tcc ttt gag gga gcc tat ggg aac	891
Leu Arg Cys Ile Gln Ser Glu Val Ser Phe Glu Gly Ala Tyr Gly Asn	
236 241 246 251	
ctc aag cgg ctg tat gac aag gca gcc aaa atg tac cac caa ctg aag	939
Leu Lys Arg Leu Tyr Asp Lys Ala Ala Lys Met Tyr His Gln Leu Lys	
252 257 262 267	
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Lys Cys Glu Thr Arg Lys Leu Ser Pro Gly Lys Lys Arg Cys Lys Asp	
268 273 278 283	
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Ile Lys Arg Leu Leu Val Asn Phe Met Tyr Leu Gln Ser Leu Leu Gln	
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ccc aaa agc agc tcc gtg gac tca gag ctg acc tca ctt tgc cag tca	1083
Pro Lys Ser Ser Ser Val Asp Ser Glu Leu Thr Ser Leu Cys Gln Ser	
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gtc ctg gag gac ttc aac ctc tgc ctc ttc tac ctg ccc tcc tca ccc	1131
Val Leu Glu Asp Phe Asn Leu Cys Leu Phe Tyr Leu Pro Ser Ser Pro	
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Asn Leu Ser Leu Ala Ser Glu Asp Glu Glu Glu Tyr Glu Ser Gly Tyr	
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Ala Phe Leu Pro Asp Leu Leu Ile Phe Gln Met Val Ile Ile Cys Leu	
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Met Cys Val His Ser Leu Glu Arg Ala Gly Ser Lys Gln Tyr Ser Ala	
364 369 374 379	
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Ala Ile Ala Phe Thr Leu Ala Leu Phe Ser His Leu Val Asn His Val	
380 385 390 395	
aac ata cgg ctg cag gct gag ctg gaa gag ggc gag aat ccc gtc ccg	1371
Asn Ile Arg Leu Gln Ala Glu Leu Glu Glu Gly Glu Asn Pro Val Pro	
396 401 406 411	

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Ala Phe Gln Ser Asp Gly Thr Asp Glu Pro Glu Ser Lys Glu Pro Val	
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Glu Lys Glu Glu Glu Pro Asp Pro Glu Pro Pro Pro Val Thr Pro Gln	
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Val Gly Glu Gly Arg Lys Ser Arg Lys Phe Ser Arg Leu Ser Cys Leu	
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Arg Arg Arg Arg His Pro Pro Lys Val Gly Asp Asp Ser Asp Leu Ser	
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Glu Gly Phe Glu Ser Asp Ser Ser His Asp Ser Ala Arg Ala Ser Glu	
476 481 486 491	
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Gly Ser Asp Ser Gly Ser Asp Lys Ser Leu Glu Gly Gly Gly Thr Ala	
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Phe Asp Ala Glu Thr Asp Ser Glu Met Asn Ser Gln Glu Ser Arg Ser	
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Asp Leu Glu Asp Met Glu Glu Glu Glu Gly Thr Arg Ser Pro Thr Leu	
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Glu Pro Pro Arg Gly Arg Ser Glu Ala Pro Asp Ser Leu Asn Gly Pro	
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Leu Gly Pro Ser Glu Ala Ser Ile Ala Ser Asn Leu Gln Ala Met Ser	
556 561 566 571	
acc cag atg ttc cag act aag cgc tgc ttc cga ctg gcc ccc acc ttt	1899
Thr Gln Met Phe Gln Thr Lys Arg Cys Phe Arg Leu Ala Pro Thr Phe	
572 577 582 587	
agc aac ctg ctc ctc cag ccc acc acc aac cct cat acc tcg gcc agc	1947
Ser Asn Leu Leu Leu Gln Pro Thr Thr Asn Pro His Thr Ser Ala Ser	
588 593 598 603	
cac agg cct tgc gtc aat ggg gat gta gac aag cct tca gag cca gcc	1995
His Arg Pro Cys Val Asn Gly Asp Val Asp Lys Pro Ser Glu Pro Ala	
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tct gag gag ggc tct gag tcg gag ggg agt gag tcc agt gga cgc tcc	2043
Ser Glu Glu Gly Ser Glu Ser Glu Gly Ser Glu Ser Ser Gly Arg Ser	
620 625 630 635	
tgt cgg aat gag cgc agc atc cag gag aag ctt cag gtc ctg atg gcc	2091

Cys	Arg	Asn	Glu	Arg	Ser	Ile	Gln	Glu	Lys	Leu	Gln	Val	Leu	Met	Ala		
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Glu	Gly	Leu	Leu	Pro	Ala	Val	Lys	Val	Phe	Leu	Asp	Trp	Leu	Arg	Thr		
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aac	ccc	gac	ctc	atc	atc	gtg	tgt	gca	cag	agc	tct	caa	agt	ctg	tgg	2187	
Asn	Pro	Asp	Leu	Ile	Ile	Val	Cys	Ala	Gln	Ser	Ser	Gln	Ser	Leu	Trp		
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aac	cgc	ctg	tct	gtg	ttg	ctg	aat	ctg	ttg	cct	gct	gct	ggt	gaa	ctc	2235	
Asn	Arg	Leu	Ser	Val	Leu	Leu	Asn	Leu	Leu	Pro	Ala	Ala	Gly	Glu	Leu		
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cag	gag	tct	ggc	ctg	gcc	ttg	tgt	cct	gag	gtc	caa	gat	ctt	ctt	gaa	2283	
Gln	Glu	Ser	Gly	Leu	Ala	Leu	Cys	Pro	Glu	Val	Gln	Asp	Leu	Leu	Glu		
700					705					710					715		
ggt	tgt	gaa	ctg	cct	gac	ctc	ccc	tct	agc	ctt	ctg	ctc	cca	gag	gac	2331	
Gly	Cys	Glu	Leu	Pro	Asp	Leu	Pro	Ser	Ser	Leu	Leu	Leu	Pro	Glu	Asp		
716					721					726					731		
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Met	Ala	Leu	Arg	Asn	Leu	Pro	Pro	Leu	Arg	Ala	Ala	His	Arg	Arg	Phe		
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Asn	Phe	Asp	Thr	Asp	Arg	Pro	Leu	Leu	Ser	Thr	Leu	Glu	Glu	Ser	Val		
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Val	Arg	Ile	Cys	Cys	Ile	Arg	Ser	Phe	Gly	His	Phe	Ile	Ala	Arg	Leu		
764					769					774					779		
caa	ggc	agc	atc	ctg	cag	ttc	aac	cca	gag	ggt	ggc	atc	ttc	gtc	agc	2523	
Gln	Gly	Ser	Ile	Leu	Gln	Phe	Asn	Pro	Glu	Val	Gly	Ile	Phe	Val	Ser		
780					785					790					795		
att	gcc	cag	tct	gag	cag	gag	agc	ctg	ctg	cag	cag	gcc	cag	gca	cag	2571	
Ile	Ala	Gln	Ser	Glu	Gln	Glu	Ser	Leu	Leu	Gln	Gln	Ala	Gln	Ala	Gln		
796					801					806					811		
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Phe	Arg	Met	Ala	Gln	Glu	Glu	Ala	Arg	Arg	Asn	Arg	Leu	Met	Arg	Asp		
812					817					822					827		
atg	gct	cag	cta	cga	ctt	cag	ctc	gaa	gtg	tct	cag	ctg	gag	ggc	agc	2667	
Met	Ala	Gln	Leu	Arg	Leu	Gln	Leu	Glu	Val	Ser	Gln	Leu	Glu	Gly	Ser		
828					833					838					843		
ctg	cag	cag	ccc	aag	gcc	cag	tca	gcc	atg	tct	ccc	tac	ctc	gtc	cct	2715	
Leu	Gln	Gln	Pro	Lys	Ala	Gln	Ser	Ala	Met	Ser	Pro	Tyr	Leu	Val	Pro		
844					849					854					859		
gac	acc	cag	gcc	ctc	tgc	cac	cat	ctc	cct	gtc	atc	cgc	caa	ctg	gcc	2763	
Asp	Thr	Gln	Ala	Leu	Cys	His	His	Leu	Pro	Val	Ile	Arg	Gln	Leu	Ala		

860	865	870	875			
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Thr Ser Gly Arg Phe	Ile Val Ile Ile Pro	Arg Thr Val Ile Asp	Gly			
876	881	886	891			
ctg gat ttg ctg aag	aag gaa cac cca ggg	gcc cgg gat ggg att	cgg	2859		
Leu Asp Leu Leu Lys	Lys Glu His Pro Gly	Ala Arg Asp Gly Ile	Arg			
892	897	902	907			
tac ctg gag gca gag	ttt aaa aaa gga aac	agg tac att cgc tgc	cag	2907		
Tyr Leu Glu Ala Glu	Phe Lys Lys Gly Asn	Arg Tyr Ile Arg Cys	Gln			
908	913	918	923			
aaa gag gtg gga aag	agc ttt gag cgg cat	aag ctg aag agg cag	gat	2955		
Lys Glu Val Gly Lys	Ser Phe Glu Arg His	Lys Leu Lys Arg Gln	Asp			
924	929	934	939			
gca gat gcc tgg act	ctc tat aag atc cta	gac agc tgc aaa cag	ctg	3003		
Ala Asp Ala Trp Thr	Leu Tyr Lys Ile Leu	Asp Ser Cys Lys Gln	Leu			
940	945	950	955			
act ctg gcc cag ggg	gca ggt gag gag gat	ccg agt ggc atg gtg	acc	3051		
Thr Leu Ala Gln Gly	Ala Gly Glu Glu Asp	Pro Ser Gly Met Val	Thr			
956	961	966	971			
atc atc aca ggc ctt	cca ctg gac aac ccc	agc gtg ctt tca ggc	ccc	3099		
Ile Ile Thr Gly Leu	Pro Leu Asp Asn Pro	Ser Val Leu Ser Gly	Pro			
972	977	982	987			
atg cag gca gcc ctg	cag gcc gct gcc cac	gcc agt gtg gac atc	aag	3147		
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Asn Val Leu Asp Phe	Tyr Lys Gln Trp Lys	Glu Ile Gly *				
1004	1009	1014				
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tcgtgtgctc ctctcctgc tgcaggggct gcacatccca ttgccccact tctgctttgt 3856
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agtctgggaa atcctggggg gagtggagtc acccactcc cagttgctgg cagagactga 4516
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<210> 419
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<212> DNA
<213> Homo sapiens

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<222> (75)..(992)

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                Met Leu Ala Leu Arg Val Ala Arg Gly Ser Trp Gly
                  1             5             10

gcc ctg cgc ggc gcc gct tgg gct ccg gga acg cgg ccg agt aag cga 158
Ala Leu Arg Gly Ala Ala Trp Ala Pro Gly Thr Arg Pro Ser Lys Arg
 13             18             23             28

cgc gcc tgc tgg gcc ctg ctg ccg ccc gtg ccc tgc tgc ttg ggc tgc 206
Arg Ala Cys Trp Ala Leu Leu Pro Pro Val Pro Cys Cys Leu Gly Cys
 29             34             39             44

ctg gcc gaa cgc tgg agg ctg cgt ccg gcc gct ctt ggc ttg cgg ctg 254
Leu Ala Glu Arg Trp Arg Leu Arg Pro Ala Ala Leu Gly Leu Arg Leu
 45             50             55             60

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ccc ggg atc ggc cag cgg aac cac tgt tcg ggc gcg ggg aag gcg gct	302
Pro Gly Ile Gly Gln Arg Asn His Cys Ser Gly Ala Gly Lys Ala Ala	
61 66 71 76	
ccc agg cca gcg gcc gga gcg ggc gcc gct gcc gaa gcc ccg ggc ggc	350
Pro Arg Pro Ala Ala Gly Ala Gly Ala Ala Glu Ala Pro Gly Gly	
77 82 87 92	
cag tgg ggc ccg gcg agc acc ccc agc ctg tat gaa aac cca tgg aca	398
Gln Trp Gly Pro Ala Ser Thr Pro Ser Leu Tyr Glu Asn Pro Trp Thr	
93 98 103 108	
atc ccg aat atg ttg tca atg acg aga att ggc ttg gcc cca gtt ctg	446
Ile Pro Asn Met Leu Ser Met Thr Arg Ile Gly Leu Ala Pro Val Leu	
109 114 119 124	
ggc tat ttg att att gaa gaa gat ttt aat att gca cta gga gtt ttt	494
Gly Tyr Leu Ile Ile Glu Glu Asp Phe Asn Ile Ala Leu Gly Val Phe	
125 130 135 140	
gct tta gct gga cta aca gat ttg ttg gat gga ttt att gct cga aac	542
Ala Leu Ala Gly Leu Thr Asp Leu Leu Asp Gly Phe Ile Ala Arg Asn	
141 146 151 156	
tgg gcc aat caa aga tca gct ttg gga agt gct ctt gat cca ctt gct	590
Trp Ala Asn Gln Arg Ser Ala Leu Gly Ser Ala Leu Asp Pro Leu Ala	
157 162 167 172	
gat aaa ata ctt atc agt atc tta tat gtt agc ttg acc tat gca gat	638
Asp Lys Ile Leu Ile Ser Ile Leu Tyr Val Ser Leu Thr Tyr Ala Asp	
173 178 183 188	
ctt att cca gtt cca ctt act tac atg atc att tcg aga gat gta atg	686
Leu Ile Pro Val Pro Leu Thr Tyr Met Ile Ile Ser Arg Asp Val Met	
189 194 199 204	
ttg att gct gct gtt ttt tat gtc aga tac cga act ctt cca aca cca	734
Leu Ile Ala Ala Val Phe Tyr Val Arg Tyr Arg Thr Leu Pro Thr Pro	
205 210 215 220	
gtc ctc tgc cag cga aca ctt gcc aag tat ttc aat cct tgc tat gcc	782
Val Leu Cys Gln Arg Thr Leu Ala Lys Tyr Phe Asn Pro Cys Tyr Ala	
221 226 231 236	
act gct agg tta aaa cca aca ttc atc agc aag gtg aat aca gca gtc	830
Thr Ala Arg Leu Lys Pro Thr Phe Ile Ser Lys Val Asn Thr Ala Val	
237 242 247 252	
cag tta atc ttg gtg gca gct tct ttg gca gct cca gtt ttc aac tat	878
Gln Leu Ile Leu Val Ala Ala Ser Leu Ala Ala Pro Val Phe Asn Tyr	
253 258 263 268	
gct gac agc att tat ctt cag ata cta tgg tgt ttt aca gct ttc acc	926
Ala Asp Ser Ile Tyr Leu Gln Ile Leu Trp Cys Phe Thr Ala Phe Thr	
269 274 279 284	

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aca gct gca tca gct tat agt tac tat cat tat ggc cgg aag act gtt      974
Thr Ala Ala Ser Ala Tyr Ser Tyr Tyr His Tyr Gly Arg Lys Thr Val
285                      290                      295                      300

cag gtg ata aaa gac tga tgaaag tcatccctca ctgtagtaa ggaagcagta      1028
Gln Val Ile Lys Asp *
301                      306

tacatcaatg ggaacagggc ccatggaaat gtacaggagt ttccctattt tgggtgttcag      1088

cttgaaaaag gacttgctcag aatcaactgt gtcacaaaa ttttaagtaat gtgcattgaa      1148

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<212> DNA
<213> Homo sapiens

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<222> (59)..(1030)

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Met Ser Glu Arg Lys Val Leu Asn Lys Tyr Tyr Pro Pro Asp Phe Asp
1          5          10          15

cca tca aag atc ccc aaa ctc aag ctc ccc aaa gac cgg cag tac gtg      154
Pro Ser Lys Ile Pro Lys Leu Lys Leu Pro Lys Asp Arg Gln Tyr Val
17          22          27          32

gtg cgg ctg atg gcc ccc ttc aac atg agg tgt aag acg tgc gga gaa      202
Val Arg Leu Met Ala Pro Phe Asn Met Arg Cys Lys Thr Cys Gly Glu
33          38          43          48

tac atc tac aag ggg aag aaa ttc aat gct cgg aag gag acg gtg cag      250
Tyr Ile Tyr Lys Gly Lys Lys Phe Asn Ala Arg Lys Glu Thr Val Gln
49          54          59          64

aac gag gtc tac ctg ggc ctg ccc atc ttc cgc ttt tac atc aag tgc      298
Asn Glu Val Tyr Leu Gly Leu Pro Ile Phe Arg Phe Tyr Ile Lys Cys
65          70          75          80

acg cgc tgc ctg gca gag atc acc ttc aag aca gac cct gaa aac aca      346
Thr Arg Cys Leu Ala Glu Ile Thr Phe Lys Thr Asp Pro Glu Asn Thr
81          86          91          96

gac tac acc atg gag cat gga gcc acg cgg aat ttc cag gct gag aag      394
Asp Tyr Thr Met Glu His Gly Ala Thr Arg Asn Phe Gln Ala Glu Lys
97          102          107          112

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Glu Leu Asn Asn Pro Met Lys Val Leu Glu Asn Arg Thr Lys Asp Ser	
129 134 139 144	
aag ctg gag atg gag gtg ctg gag aac ctc cag gag ctg aaa gac ctg	538
Lys Leu Glu Met Glu Val Leu Glu Asn Leu Gln Glu Leu Lys Asp Leu	
145 150 155 160	
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Asn Gln Arg Gln Ala His Val Asp Phe Glu Ala Met Leu Arg Gln His	
161 166 171 176	
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Arg Leu Ser Glu Glu Glu Arg Arg Arg Gln Gln Gln Glu Glu Asp Glu	
177 182 187 192	
cag gag acc gcg gcc ctg ttg gag gaa gcc aga aag cga aga ctg ctg	682
Gln Glu Thr Ala Ala Leu Leu Glu Glu Ala Arg Lys Arg Arg Leu Leu	
193 198 203 208	
gag gac tcc gac tca gag gat gag gct gct ccc tcg ccc ctg cag cca	730
Glu Asp Ser Asp Ser Glu Asp Glu Ala Ala Pro Ser Pro Leu Gln Pro	
209 214 219 224	
gcc ctt cgg ccc aac ccc acc gcc atc ctg gat gag gcc cca aag ccc	778
Ala Leu Arg Pro Asn Pro Thr Ala Ile Leu Asp Glu Ala Pro Lys Pro	
225 230 235 240	
aag agg aag gtg gag gtc tgg gag cag agc gtt ggc agc ctg ggc agc	826
Lys Arg Lys Val Glu Val Trp Glu Gln Ser Val Gly Ser Leu Gly Ser	
241 246 251 256	
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Arg Pro Pro Leu Ser Arg Leu Val Val Val Lys Lys Ala Lys Ala Asp	
257 262 267 272	
ccg gac tgc agc aac ggg cag cct cag gcg gcc ccc acc cca gga gcc	922
Pro Asp Cys Ser Asn Gly Gln Pro Gln Ala Ala Pro Thr Pro Gly Ala	
273 278 283 288	
ccg cag aac agg aag gag gcc aac cct aca ccc ctg acg cct ggc gcg	970
Pro Gln Asn Arg Lys Glu Ala Asn Pro Thr Pro Leu Thr Pro Gly Ala	
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tcc tcc ctg agc caa ctg ggt gca tac ctg gac agt gac gac agc aac	1018
Ser Ser Leu Ser Gln Leu Gly Ala Tyr Leu Asp Ser Asp Asp Ser Asn	
305 310 315 320	
gag	
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Gly Ser Asn *	
321	

cttcagccac attgaggcca gcattgctgg tggtcagggc aggaggcctt ggcgtgactg 1133
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Met Ala Phe Trp
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Ala Gly Gly Ser Pro Ser Val Val Asp Tyr Phe Pro Ser Glu Asp Phe
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Met Trp Ala His Ser Met Thr Val Gln Asp Tyr Gln Asp Leu Ile Asp
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Arg Gly Trp Arg Arg Ser Gly Lys Tyr Val Tyr Lys Pro Val Met Asn
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Gln Thr Cys Cys Pro Gln Tyr Thr Ile Arg Cys Arg Pro Leu Gln Phe
69 74 79 84
cag cct tca aaa tct cac aag aag gtt ttg aaa aaa atg ttg aaa ttt 404

Gln Pro Ser Lys Ser His Lys Lys Val Leu Lys Lys Met Leu Lys Phe	
85 90 95 100	
ctg gct aaa ggg gag gtt ccc aaa gga agt tgt gag gat gag ccc atg	452
Leu Ala Lys Gly Glu Val Pro Lys Gly Ser Cys Glu Asp Glu Pro Met	
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Asp Ser Thr Met Asp Asp Ala Val Ala Gly Asp Phe Ala Leu Ile Asn	
117 122 127 132	
aaa ctg gat ata cag tgt gat ctt aaa aca ctc agt gat gac atc aaa	548
Lys Leu Asp Ile Gln Cys Asp Leu Lys Thr Leu Ser Asp Asp Ile Lys	
133 138 143 148	
gag agt tta gag agt gaa gga aaa aat tca aag aaa gaa gaa cct cag	596
Glu Ser Leu Glu Ser Glu Gly Lys Asn Ser Lys Lys Glu Glu Pro Gln	
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Glu Leu Leu Gln Ser Gln Asp Phe Val Gly Glu Lys Leu Gly Ser Gly	
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Glu Pro Ser His Ser Val Lys Val His Thr Val Pro Lys Pro Gly Lys	
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Gly Ala Asp Leu Ser Lys Pro Pro Cys Arg Lys Ala Lys Glu Ile Arg	
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Lys Glu Arg Lys Arg Leu Lys Leu Met Gln Gln Asn Pro Ala Gly Glu	
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Lys Ala Lys Ser Asn Gln Pro Lys Ser Leu Glu Asp Leu Ile Phe Glu	
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Ser Leu Pro Glu Asn Ala Ser His Lys Leu Glu Val Arg Val Val Arg	
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Ser Ser Pro Pro Ser Ser Gln Phe Lys Ala Thr Leu Leu Glu Ser Tyr	
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Gln Val Tyr Lys Arg Tyr Gln Met Val Ile His Lys Asn Pro Pro Asp	
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Glu Ala Glu Thr Pro Pro Asn Gly Pro Asp Cys Gly Tyr Gly Ser Phe				
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cac cag cag tac tgg ctt gac gga aag atc att gct gtg ggg gtg att				1172
His Gln Gln Tyr Trp Leu Asp Gly Lys Ile Ile Ala Val Gly Val Ile				
341	346	351	356	
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gat tat tcg ttt ttg tct ttg ggc gtc tac tct gca cta cga gaa att				1268
Asp Tyr Ser Phe Leu Ser Leu Gly Val Tyr Ser Ala Leu Arg Glu Ile				
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gct ttt act agg cag ctt cat gag aaa act tct caa ctc agc tat tat				1316
Ala Phe Thr Arg Gln Leu His Glu Lys Thr Ser Gln Leu Ser Tyr Tyr				
389	394	399	404	
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Tyr Met Gly Phe Tyr Ile His Ser Cys Pro Lys Met Lys Tyr Lys Gly				
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Gln Tyr Arg Pro Ser Asp Leu Leu Cys Pro Glu Thr Tyr Val Trp Val				
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ttc aac cag gac cca gaa gca gtg gat gag gat cgc agt acg gaa cct				1508
Phe Asn Gln Asp Pro Glu Ala Val Asp Glu Asp Arg Ser Thr Glu Pro				
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Asp Arg Leu Gln Val Phe His Lys Arg Ala Ile Met Pro Tyr Gly Val				
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tat aag aaa cag cag aaa gac cca agt gag gag gct gct gtt ctg cag				1604
Tyr Lys Lys Gln Gln Lys Asp Pro Ser Glu Glu Ala Ala Val Leu Gln				
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Tyr Ala Ser Leu Val Gly Gln Lys Cys Ser Glu Arg Met Leu Leu Phe				
501	506	511	516	
aga aac tga cctgttc gcctctgccg ggaagttcct gtgttggtgct gatgatttgt				1708
Arg Asn *				
517				
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ttttattttg actatctatg gcttttaaaa aatattttgt ggcaatgtat ctgtgagaat				1828

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 Met
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 Glu Asp Ser Glu Ala Leu Gly Phe Glu His Met Gly Leu Asp Pro Arg
 2 7 12 17
 ctc ctt cag gct gtc acc gat ctg ggc tgg tgc cga cct acg ctg atc 213
 Leu Leu Gln Ala Val Thr Asp Leu Gly Trp Ser Arg Pro Thr Leu Ile
 18 23 28 33
 cag gag aag gcc atc cca ctg gcc cta gaa ggg aag gac ctc ctg gct 261
 Gln Glu Lys Ala Ile Pro Leu Ala Leu Glu Gly Lys Asp Leu Leu Ala
 34 39 44 49
 cgg gcc cgc acg ggc tcc ggg aag acg gcc gct tat gct att ccg atg 309
 Arg Ala Arg Thr Gly Ser Gly Lys Thr Ala Ala Tyr Ala Ile Pro Met
 50 55 60 65
 ctg cag ctg ttg ctc cat agg aag gcg aca ggt ccg gtg gta gaa cag 357
 Leu Gln Leu Leu Leu His Arg Lys Ala Thr Gly Pro Val Val Glu Gln
 66 71 76 81
 gca gtg aga ggc ctt gtt ctt gtt cct acc aag gag ctg gca cgg caa 405
 Ala Val Arg Gly Leu Val Leu Val Pro Thr Lys Glu Leu Ala Arg Gln
 82 87 92 97
 gca cag tcc atg att cag cag ctg gct acc tac tgt gct cgg gat gtc 453

Ala Gln Ser Met Ile Gln Gln Leu Ala Thr Tyr Cys Ala Arg Asp Val	
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Arg Val Ala Asn Val Ser Ala Ala Glu Asp Ser Val Ser Gln Arg Ala	
114 119 124 129	
gtg ctg atg gag aag cca gat gtg gta gta ggg acc cca tct cgc ata	549
Val Leu Met Glu Lys Pro Asp Val Val Val Gly Thr Pro Ser Arg Ile	
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Leu Ser His Leu Gln Gln Asp Ser Leu Lys Leu Arg Asp Ser Leu Glu	
146 151 156 161	
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Leu Leu Val Val Asp Glu Ala Asp Leu Leu Phe Ser Phe Gly Phe Glu	
162 167 172 177	
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226 231 236 241	
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Glu Asp Lys Phe Leu Leu Leu Tyr Ala Leu Leu Lys Leu Ser Leu Ile	
242 247 252 257	
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Arg Gly Lys Ser Leu Leu Phe Val Asn Thr Leu Glu Arg Ser Tyr Arg	
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Gly Glu Leu Pro Leu Arg Ser Arg Cys His Ile Ile Ser Gln Phe Asn	
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gcc tct gat ccg gaa gca ggt gtg gcc cgg ggc ata gac ttc cac cat				1173
Ala Ser Asp Pro Glu Ala Gly Val Ala Arg Gly Ile Asp Phe His His				
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gtg tct gct gtg ctc aac ttt gat ctt ccc cca acc cct gag gcc tac				1221
Val Ser Ala Val Leu Asn Phe Asp Leu Pro Pro Thr Pro Glu Ala Tyr				
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Ile His Arg Ala Gly Arg Thr Ala Arg Ala Asn Asn Pro Gly Ile Val				
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Leu Thr Phe Val Leu Pro Thr Glu Gln Phe His Leu Gly Lys Ile Glu				
386	391	396	401	
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Phe Arg Met Glu Glu Ile Glu Gly Phe Arg Tyr Arg Cys Arg Asp Ala				
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Ile Lys Glu Glu Leu Leu His Ser Glu Lys Leu Lys Thr Tyr Phe Glu				
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Asp Asn Pro Arg Asp Leu Gln Leu Leu Arg His Asp Leu Pro Leu His				
466	471	476	481	
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Pro Ala Val Val Lys Pro His Leu Gly His Val Pro Asp Tyr Leu Val				
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cct cct gct ctc cgt ggc ctg gtg cgc cct cac aag aag cgg aag aag				1653
Pro Pro Ala Leu Arg Gly Leu Val Arg Pro His Lys Lys Arg Lys Lys				
498	503	508	513	
ctg tct tcc tct tgt agg aag gcc aag aga gca aag tcc cag aac cca				1701
Leu Ser Ser Ser Cys Arg Lys Ala Lys Arg Ala Lys Ser Gln Asn Pro				
514	519	524	529	
ctg cgc agc ttc aag cac aaa gga aag aaa ttc aga ccc aca gcc aag				1749
Leu Arg Ser Phe Lys His Lys Gly Lys Lys Phe Arg Pro Thr Ala Lys				
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Pro Ser *				
546				

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 Met Ser Gly Gly
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 aag aag aag agt agt ttc caa atc acc agc gtc acc acg gac tat gag 763
 Lys Lys Lys Ser Ser Phe Gln Ile Thr Ser Val Thr Thr Asp Tyr Glu
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 21 26 31 36
 / acc ggg ccc ccg ccc cgc ctg ccc aat ggg gag ccc agc ccc gat ccg 859
 Thr Gly Pro Pro Pro Arg Leu Pro Asn Gly Glu Pro Ser Pro Asp Pro
 37 42 47 52

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Gly Gly Lys Gly Thr Pro Arg Asn Gly Ser Pro Pro Pro Gly Ala Pro	
53 58 63 68	
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Glu Pro His Ser Phe Gly Gly Leu Leu Glu Gly Ile Arg Gly Ala Ser	
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Thr Pro Pro Leu Ser Arg Arg Lys Ala Val Asp Met Arg Leu Arg Met	
229 234 239 244	
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Glu Leu Gly Ala Pro Glu Glu Met Gly Gln Val Pro Pro Leu Asp Ser	
245 250 255 260	
cgc ccc agc tcc cca gcc ctc tac ttc acc cac gat gcc agc ctg gtt	1531
Arg Pro Ser Ser Pro Ala Leu Tyr Phe Thr His Asp Ala Ser Leu Val	
261 266 271 276	

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His Lys Ser Pro Asp Pro Phe Gly Ala Val Ala Ala Gln Lys Phe Ser
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ctg gcc cac tcc atg ttg gcc atc agt ggt cac cta gac agc gac gat      1627
Leu Ala His Ser Met Leu Ala Ile Ser Gly His Leu Asp Ser Asp Asp
293                      298                      303                      308

gat agt ggc tcc gga agc ctg gtt ggc att gac aac aaa atc gag caa      1675
Asp Ser Gly Ser Gly Ser Leu Val Gly Ile Asp Asn Lys Ile Glu Gln
309                      314                      319                      324

gcc atg gac ttg gtg aag tcc cac ctc atg ttt gcg gtc cgg gag gag      1723
Ala Met Asp Leu Val Lys Ser His Leu Met Phe Ala Val Arg Glu Glu
325                      330                      335                      340

gtg gag gtg ctg aag gag cag atc cgg gaa ttg gcg gag cgg aac gct      1771
Val Glu Val Leu Lys Glu Gln Ile Arg Glu Leu Ala Glu Arg Asn Ala
341                      346                      351                      356

gcg ctg gag cag gag aat ggg ctg ctg cgc gcc ctg gcc agc ccg gag      1819
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357                      362                      367                      372

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Gln Leu Ala Gln Leu Pro Ser Ser Gly Val Pro Arg Leu Gly Pro Pro
373                      378                      383                      388

gcg ccc aat ggg ccc tcc gtc tga gcctcccttc ccttacaatg tgcctttggg      1921
Ala Pro Asn Gly Pro Ser Val *
389                      394

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gtccccgggg tgggagttca aggctcagta atggcctggg cccccggccc ctgccccatc      2041

tcctcatcat cccagcctt gatggaggag ggagggcttc aggacggggc gtcagaggga      2101

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gcttggggga gtcggaggct ccccggcaga cccccaccc ccattctgtt cccttgaggt      2221

gcctcctctc ctctgcccag gggagggagt gtggacagta tctggaagtt ctgggattca      2281

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<222> (301)..(1167)

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ggaagttcat	caacaagctt	gttgataaaa	aagcaaagag	agacttcaga	cacgccgatc		300
atg aga gct tta aaa gaa ctt gat gag gga aaa ata ttt aaa aat tgg							348
Met Arg Ala Leu Lys Glu Leu Asp Glu Gly Lys Ile Phe Lys Asn Trp							
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Gly Thr Gln Thr Glu Lys Glu Asp Thr Ser Asn Ile Asn Pro Arg Gln							
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act gaa act tca gtt aat gca agt cgt tct cca gaa aag tgt gcc caa							444
Thr Glu Thr Ser Val Asn Ala Ser Arg Ser Pro Glu Lys Cys Ala Gln							
33	38		43		48		
cag aga caa aag aga ctt aat tcg gcc tca cag aga tca tca tct tta							492
Gln Arg Gln Lys Arg Leu Asn Ser Ala Ser Gln Arg Ser Ser Ser Leu							
49	54		59		64		
cca cct tca aat cgt aaa tca agt act cca aca aaa aga gag att atg							540
Pro Pro Ser Asn Arg Lys Ser Ser Thr Pro Thr Lys Arg Glu Ile Met							
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cta aca cca gtg act gtg gct tat agt cca aag cga tcc cct aaa gaa							588
Leu Thr Pro Val Thr Val Ala Tyr Ser Pro Lys Arg Ser Pro Lys Glu							
81	86		91		96		
aac ttg tcc cca gga ttt agt cat ctg ctt agc aaa aat gag agc agt							636
Asn Leu Ser Pro Gly Phe Ser His Leu Leu Ser Lys Asn Glu Ser Ser							
97	102		107		112		
cca att cga ttt gat ata ctt ttg gat gat tta gat act gtt cct gtg							684
Pro Ile Arg Phe Asp Ile Leu Leu Asp Asp Leu Asp Thr Val Pro Val							
113	118		123		128		
tct aca tta caa cgt acc aat cca aga aag caa ctc cag ttt ctt cct							732
Ser Thr Leu Gln Arg Thr Asn Pro Arg Lys Gln Leu Gln Phe Leu Pro							
129	134		139		144		
cta gat gac tcg gaa gaa aaa act tat tct gag aaa gcc acc gat aac							780
Leu Asp Asp Ser Glu Glu Lys Thr Tyr Ser Glu Lys Ala Thr Asp Asn							
145	150		155		160		
cat gtt aat cat agc tct tgc cct gaa ccg gtg cca aat gga gtg aag							828
His Val Asn His Ser Ser Cys Pro Glu Pro Val Pro Asn Gly Val Lys							
161	166		171		176		
aaa gta tct gtg aga aca gcc tgg gag aag aat aaa tca gtt agc tac							876

Lys Val Ser Val Arg Thr Ala Trp Glu Lys Asn Lys Ser Val Ser Tyr	
177 182 187 192	
gaa cag tgt aag ccg gtt tca gtc act cca cag ggg aat gat ttt gaa	924
Glu Gln Cys Lys Pro Val Ser Val Thr Pro Gln Gly Asn Asp Phe Glu	
193 198 203 208	
tat aca gca aaa att cgg acc cta gct gaa aca gaa cga ttt ttt gat	972
Tyr Thr Ala Lys Ile Arg Thr Leu Ala Glu Thr Glu Arg Phe Phe Asp	
209 214 219 224	
gaa ctt aca aaa gaa aag gac cag att gag gca gca cta agc agg atg	1020
Glu Leu Thr Lys Glu Lys Asp Gln Ile Glu Ala Ala Leu Ser Arg Met	
225 230 235 240	
cct tct cct gga gga cga atc act tta cag aca aga tta aat cag gaa	1068
Pro Ser Pro Gly Gly Arg Ile Thr Leu Gln Thr Arg Leu Asn Gln Glu	
241 246 251 256	
gcc ttg gaa gat cgt ttg gaa agg att aat cga gaa ctg ggt tca gtt	1116
Ala Leu Glu Asp Arg Leu Glu Arg Ile Asn Arg Glu Leu Gly Ser Val	
257 262 267 272	
cgc atg acg cta aag aaa ttc cat gtt ttg cgc acc tct gca aat ctt	1164
Arg Met Thr Leu Lys Lys Phe His Val Leu Arg Thr Ser Ala Asn Leu	
273 278 283 288	
tga gatt ttagccatt aaattttgag acatttttgt ttgcactaat gtataattat	1221
* 289	
gcagtcagaa aaggcaaact attttgtact gtttataagc cttcaaacag tagttttaca	1281
atcatgctat tcttacactt gctattttat acttcaaata gccacatatt ttcaagatat	1341
ttttgttatg ctcaggaatc tcttgtatat ttactatatt aaaaagcatt atttttaa	1401
agtatctgtc tccaatttat atcaagaata aggaaatata aacagaggaa gcagcttggt	1461
tctaaacaaa tagtgttatc cttttacaat taactgcaca tcaattttat agacttggtc	1521
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aaaaaaaaaa aa	1593

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tcaacatgta tgtttggtgt gggggcgggg ggcaagatac agacatttag tccatagcac 180

tgtatgtctt aaaattattg tttaaggcac cgttcacctc tggaaaagga ttcttcacct 240

ggaagttcat caacaagctt gttgataaaa aagcaaagag agacttcaga cagccgac 300

atg aga gct tta aaa gaa ctt gat gag gga aaa ata ttt aaa aat tgg 348
Met Arg Ala Leu Lys Glu Leu Asp Glu Gly Lys Ile Phe Lys Asn Trp
1 5 10 15

ggg aca cag aca gag aaa gag gac acc tca aat ata aat cct cgg caa 396
Gly Thr Gln Thr Glu Lys Glu Asp Thr Ser Asn Ile Asn Pro Arg Gln
17 22 27 32

act gaa act tca gtt aat gca agt cgt tct cca gaa aag tgt gcc caa 444
Thr Glu Thr Ser Val Asn Ala Ser Arg Ser Pro Glu Lys Cys Ala Gln
33 38 43 48

cag aga caa aag aga ctt aat tcg gcc tca cag aga tca tca tct tta 492
Gln Arg Gln Lys Arg Leu Asn Ser Ala Ser Gln Arg Ser Ser Ser Leu
49 54 59 64

cca cct tca aat cgt aaa tca agt act cca aca aaa aga gag att atg 540
Pro Pro Ser Asn Arg Lys Ser Ser Thr Pro Thr Lys Arg Glu Ile Met
65 70 75 80

cta aca cca gtg act gtg gct tat agt cca aag cga tcc cct aaa gaa 588
Leu Thr Pro Val Thr Val Ala Tyr Ser Pro Lys Arg Ser Pro Lys Glu
81 86 91 96

aac ttg tcc cca gga ttt agt cat ctg ctt agc aaa aat gag agc agt 636
Asn Leu Ser Pro Gly Phe Ser His Leu Leu Ser Lys Asn Glu Ser Ser
97 102 107 112

cca att cga gaa aaa act tat tct gag aaa gcc acc gat aac cat gtt 684
Pro Ile Arg Glu Lys Thr Tyr Ser Glu Lys Ala Thr Asp Asn His Val
113 118 123 128

aat cat agc tct tgc cct gaa ccg gtg cca aat gga gtg aag aaa gta 732
Asn His Ser Ser Cys Pro Glu Pro Val Pro Asn Gly Val Lys Lys Val
129 134 139 144

tct gtg aga aca gcc tgg gag aag aat aaa tca gtt agc tac gaa cag 780
Ser Val Arg Thr Ala Trp Glu Lys Asn Lys Ser Val Ser Tyr Glu Gln
145 150 155 160

tgt aag ccg gtt tca gtc act cca cag ggg aat gat ttt gaa tat aca 828
Cys Lys Pro Val Ser Val Thr Pro Gln Gly Asn Asp Phe Glu Tyr Thr
161 166 171 176

gca aaa att cgg acc cta gct gaa aca gaa cga ttt ttt gat gaa ctt 876
Ala Lys Ile Arg Thr Leu Ala Glu Thr Glu Arg Phe Phe Asp Glu Leu

177	182	187	192	
aca aaa gaa aag gac	cag att gag gca gca	cta agc agg atg cct tct		924
Thr Lys Glu Lys Asp	Gln Ile Glu Ala Ala	Leu Ser Arg Met Pro Ser		
193	198	203	208	
cct gga gga cga atc	act tta cag aca aga	tta aat cag gaa gcc ttg		972
Pro Gly Gly Arg Ile	Thr Leu Gln Thr Arg	Leu Asn Gln Glu Ala Leu		
209	214	219	224	
gaa gat cgt ttg gaa	agg att aat cga gaa	ctg ggt tca gtt cgc atg		1020
Glu Asp Arg Leu Glu	Arg Ile Asn Arg Glu	Leu Gly Ser Val Arg Met		
225	230	235	240	
acg cta aag aaa ttc	cat gtt ttg cgc acc	tct gca aat ctt tga gat		1068
Thr Leu Lys Lys Phe	His Val Leu Arg Thr	Ser Ala Asn Leu *		
241	246	251		
ttgtagccat taaat	tttga gacatttttg	tttgcactaa tgtataatta	tgcagtcaga	1128
aaaggcaaac tatttt	gtac tgtttataag	ccttcaaaca gtagttttac	aatcatgcta	1188
ttcttacact tgctat	tttta tacttcaa	aat agccacatat	tttcaagata	1248
ttttt gttat				
gctcaggaat ctctt	gtata ttttactatt	taaaaagcat tattttt	aaa tagtatctgt	1308
ctccaattta tatca	aagaat aaggaa	atat aaacagagga	agcagcttgt	1368
ttcta	aaaca			
atagtgttat ccttt	tacaa ttaactgcac	atcaatttta tagacttg	tt ctacattgta	1428
aatacaattc agttt	ttaaa aaataaagct	tactagcttc acataa	atga aaaaaaaaa	1488
aaa				1491

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atg act tat gct tat ctc	112
Met Thr Tyr Ala Tyr Leu	
1	
ttc aag tat atc atc atc gga gac aca ggt gtg ggg aag tca tgt ctc	160
Phe Lys Tyr Ile Ile Ile Gly Asp Thr Gly Val Gly Lys Ser Cys Leu	
7 12 17 22	

ctc ctg cag ttt aca gat aag cgg ttc cag cct gtc cac gac ctc aca	208
Leu Leu Gln Phe Thr Asp Lys Arg Phe Gln Pro Val His Asp Leu Thr	
23 28 33 38	
ata ggt gtg gag ttt gga gct cgt atg gtc aac att gat gga aaa caa	256
Ile Gly Val Glu Phe Gly Ala Arg Met Val Asn Ile Asp Gly Lys Gln	
39 44 49 54	
atc aaa ctg caa atc tgg gat acg gct ggg caa gaa tcc ttc cgt tct	304
Ile Lys Leu Gln Ile Trp Asp Thr Ala Gly Gln Glu Ser Phe Arg Ser	
55 60 65 70	
atc acc cgt tcc tac tac agg gga gca gct gga gca ctg ctg gtg tac	352
Ile Thr Arg Ser Tyr Tyr Arg Gly Ala Ala Gly Ala Leu Leu Val Tyr	
71 76 81 86	
gac att aca agg cgt gaa acc ttc aac cac ctg acc tca tgg tta gag	400
Asp Ile Thr Arg Arg Glu Thr Phe Asn His Leu Thr Ser Trp Leu Glu	
87 92 97 102	
gat gcc cgg cag cac tct agt tcc aac atg gtt atc atg ctc att ggg	448
Asp Ala Arg Gln His Ser Ser Ser Asn Met Val Ile Met Leu Ile Gly	
103 108 113 118	
aat aag agt gac cta gag tcc cgc agg gat gtg aag aga gaa gaa gga	496
Asn Lys Ser Asp Leu Glu Ser Arg Arg Asp Val Lys Arg Glu Glu Gly	
119 124 129 134	
gag gcc ttt gct agg gag cat gga ctt ata ttc atg gaa act tca gcc	544
Glu Ala Phe Ala Arg Glu His Gly Leu Ile Phe Met Glu Thr Ser Ala	
135 140 145 150	
aaa aca gcc tgc aat gtt gaa gag gcc ttc att aac aca gcc aaa gaa	592
Lys Thr Ala Cys Asn Val Glu Glu Ala Phe Ile Asn Thr Ala Lys Glu	
151 156 161 166	
ata tat agg aag atc cag cag ggt tta ttt gat gtc cac aat gag gca	640
Ile Tyr Arg Lys Ile Gln Gln Gly Leu Phe Asp Val His Asn Glu Ala	
167 172 177 182	
aat ggc atc aag att ggg ccc caa cag tca att tca aca tca gtg gga	688
Asn Gly Ile Lys Ile Gly Pro Gln Gln Ser Ile Ser Thr Ser Val Gly	
183 188 193 198	
ccc agt gcc tcc cag cgg aac tct cgt gac ata ggg tcc aac tct ggc	736
Pro Ser Ala Ser Gln Arg Asn Ser Arg Asp Ile Gly Ser Asn Ser Gly	
199 204 209 214	
tgc tgc tga acatctg gcttgaactt tttttgtcct tcttgaata gcttcagatc	792
Cys Cys *	
215	
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 Met Ala Ala Pro Arg
 1

gta ttc cca ctt tcc tgt gcg gtg cag cag tat gcc tgg ggg aag atg 162
 Val Phe Pro Leu Ser Cys Ala Val Gln Gln Tyr Ala Trp Gly Lys Met
 6 11 16 21

ggt tcc aac agc gaa gtg gcg cgg ctg ttg gcc agc agt gat cca ctg 210
 Gly Ser Asn Ser Glu Val Ala Arg Leu Leu Ala Ser Ser Asp Pro Leu
 22 27 32 37

gcc cag atc gca gag gac aag cct tat gca gag ttg tgg atg ggg act 258
 Ala Gln Ile Ala Glu Asp Lys Pro Tyr Ala Glu Leu Trp Met Gly Thr
 38 43 48 53

cac ccc cga ggg gat gcc aag atc ctt gac aac cgc atc tca cag aag 306
 His Pro Arg Gly Asp Ala Lys Ile Leu Asp Asn Arg Ile Ser Gln Lys
 54 59 64 69

acc cta agc cag tgg att gct gag aac cag gac agc ttg ggc tca aag 354
 Thr Leu Ser Gln Trp Ile Ala Glu Asn Gln Asp Ser Leu Gly Ser Lys
 70 75 80 85

gtc aag gac acc ttt aat ggc aac ctg ccc ttc ctc ttc aaa gtg ctc 402
 Val Lys Asp Thr Phe Asn Gly Asn Leu Pro Phe Leu Phe Lys Val Leu
 86 91 96 101

tca gtt gaa aca ccc ctg tcc atc cag gca cac cct aac aag gag ctg 450
 Ser Val Glu Thr Pro Leu Ser Ile Gln Ala His Pro Asn Lys Glu Leu
 102 107 112 117

gca gag aag ctg cac ctc cag gct ccg cag cac tac ccc gat gcc aac 498
 Ala Glu Lys Leu His Leu Gln Ala Pro Gln His Tyr Pro Asp Ala Asn
 118 123 128 133

cac aag cca gag atg gcc att gcc ctc acc ccc ttc cag ggc ttg tgt 546
 His Lys Pro Glu Met Ala Ile Ala Leu Thr Pro Phe Gln Gly Leu Cys
 134 139 144 149

ggc ttc cgg cca gtt gag gag att gta acc ttt cta aag aag gtg cct 594
 Gly Phe Arg Pro Val Glu Glu Ile Val Thr Phe Leu Lys Lys Val Pro
 150 155 160 165

gag ttt cag ttc ctg att gga gat gag gca gca aca cac ctg aag cag 642

Glu Phe Gln Phe Leu Ile Gly Asp Glu Ala Ala Thr His Leu Lys Gln	
166 171 176 181	
acc atg agc cat gac tcc cag gct gtg gcc tcc tct ctg cag agc tgt	690
Thr Met Ser His Asp Ser Gln Ala Val Ala Ser Ser Leu Gln Ser Cys	
182 187 192 197	
ttc tcc cac ctg atg aag agt gag aag aag gtg gtg gtg gaa cag ctc	738
Phe Ser His Leu Met Lys Ser Glu Lys Lys Val Val Val Glu Gln Leu	
198 203 208 213	
aac ctg ttg gtg aag cgg atc tcc cag caa gcg gct gcc gga aac aac	786
Asn Leu Leu Val Lys Arg Ile Ser Gln Gln Ala Ala Ala Gly Asn Asn	
214 219 224 229	
atg gag gac atc ttt ggg gag ctt ttg cta cag ctg cac cag cag tac	834
Met Glu Asp Ile Phe Gly Glu Leu Leu Leu Gln Leu His Gln Gln Tyr	
230 235 240 245	
cca ggt gat atc ggc tgc ttt gcc atc tac ttc ctg aac ctg ctt acc	882
Pro Gly Asp Ile Gly Cys Phe Ala Ile Tyr Phe Leu Asn Leu Leu Thr	
246 251 256 261	
ctg aag cct ggg gag gcc atg ttt ctg gag gcc aac gta ccc cat gcc	930
Leu Lys Pro Gly Glu Ala Met Phe Leu Glu Ala Asn Val Pro His Ala	
262 267 272 277	
tac ctg aaa gga gac tgc gtg gag tgc atg gcg tgt tca gac aac aca	978
Tyr Leu Lys Gly Asp Cys Val Glu Cys Met Ala Cys Ser Asp Asn Thr	
278 283 288 293	
gtt cgt gct ggc ctg aca ccc aag ttc att gat gtg cca acc ctg tgt	1026
Val Arg Ala Gly Leu Thr Pro Lys Phe Ile Asp Val Pro Thr Leu Cys	
294 299 304 309	
gaa atg ctc agc tat acc cct agc tcc agc aag gac agg ctc ttt ctc	1074
Glu Met Leu Ser Tyr Thr Pro Ser Ser Ser Lys Asp Arg Leu Phe Leu	
310 315 320 325	
cca aca cgg agt cag gaa gac ccc tac ctc tca atc tat gac ccc cct	1122
Pro Thr Arg Ser Gln Glu Asp Pro Tyr Leu Ser Ile Tyr Asp Pro Pro	
326 331 336 341	
gta cca gac ttc acc att atg aag acg gag gtc cct ggc tct gtc act	1170
Val Pro Asp Phe Thr Ile Met Lys Thr Glu Val Pro Gly Ser Val Thr	
342 347 352 357	
gaa tac aag gtc ttg gca ctg gac tct gcc agc atc ctc ctg atg gta	1218
Glu Tyr Lys Val Leu Ala Leu Asp Ser Ala Ser Ile Leu Leu Met Val	
358 363 368 373	
cag ggg aca gtg ata gcc agc aca ccc aca acc cag aca cca atc cct	1266
Gln Gly Thr Val Ile Ala Ser Thr Pro Thr Thr Gln Thr Pro Ile Pro	
374 379 384 389	
ctg caa cgt ggt ggc gtg ctc ttc att ggg gcc aat gag agt gtc tca	1314
Leu Gln Arg Gly Gly Val Leu Phe Ile Gly Ala Asn Glu Ser Val Ser	

390	395	400	405	
ctg aag ctt act gag ccg aag gac ctg ctg ata ttc cgt gcc tgc tgt				1362
Leu Lys Leu Thr Glu Pro Lys Asp Leu Leu Ile Phe Arg Ala Cys Cys				
406	411	416	421	
ctg ctg taa aggctgc agcctcccca gctctcctct gccagccacc ctaaattcca				1418
Leu Leu *				
422				
gccaacctca cctcctcggg ccagctcaa gccccttcc ttgctctgga ccccttaggt				1478
ataccctgga agagctgggg tgggggagga gggagcgtga aggtagtac tcctgaacac				1538
accaggtgg aaccatcttt ggggaggaga ggcccggtgtg aggggtctga tactcccttt				1598
gtttccctc tctactcctc gctacacctg agccaggctc ttgccaactc tgttccagcc				1658
tatggcttta ggctagctgt taaatatgtg acccagcatt agctcagcat ctgtcagagc				1718
aagagaccag gtaatttcta agaacagggt tctagcgatg ggactgcccc tttcctcagc				1778
tgcagaggag gaaagggaaa gggtaggcct gtagactaac gctgtttaca cccttggtct				1838
gtcaaagcaa ttaaagatca cttgtgttga gaaaaaaqaa aaaa				1882

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atg cta cca gcc ggc gag atc ggc gcc tct	110
Met Leu Pro Ala Gly Glu Ile Gly Ala Ser	
1 5	
cct gca gcc ccg tgc tgc tct gaa agt ggt gac gaa agg aag aac ctc	158
Pro Ala Ala Pro Cys Cys Ser Glu Ser Gly Asp Glu Arg Lys Asn Leu	
11 16 21 26	
gag gag aaa agt gac ata aat gtt aca gtt ctt att gga agt aaa caa	206
Glu Glu Lys Ser Asp Ile Asn Val Thr Val Leu Ile Gly Ser Lys Gln	
27 32 37 42	
gtc agt gaa ggt aca gat aat ggt gat ctc cct tct tat gtg tct gca	254
Val Ser Glu Gly Thr Asp Asn Gly Asp Leu Pro Ser Tyr Val Ser Ala	
43 48 53 58	

ttc	ata	gaa	aag	gaa	gtt	gga	aat	gac	ctt	aaa	tct	tta	aag	aaa	ctt	302
Phe	Ile	Glu	Lys	Glu	Val	Gly	Asn	Asp	Leu	Lys	Ser	Leu	Lys	Lys	Leu	
59					64					69					74	
gat	aaa	ctc	ata	gaa	cag	agg	aca	gta	agt	aaa	atg	cag	tta	gaa	gaa	350
Asp	Lys	Leu	Ile	Glu	Gln	Arg	Thr	Val	Ser	Lys	Met	Gln	Leu	Glu	Glu	
75					80					85					90	
cag	gta	ctt	aca	att	tca	tca	gaa	att	cct	aaa	aga	att	cga	agt	gcc	398
Gln	Val	Leu	Thr	Ile	Ser	Ser	Glu	Ile	Pro	Lys	Arg	Ile	Arg	Ser	Ala	
91					96					101					106	
tta	aaa	aat	gca	gaa	gaa	tca	aag	caa	ttt	ctt	aat	cag	ttt	ctg	gag	446
Leu	Lys	Asn	Ala	Glu	Glu	Ser	Lys	Gln	Phe	Leu	Asn	Gln	Phe	Leu	Glu	
107					112					117					122	
cag	gaa	act	cat	ctc	ttc	agc	gcc	att	aac	agc	cat	ttg	ctg	act	gcg	494
Gln	Glu	Thr	His	Leu	Phe	Ser	Ala	Ile	Asn	Ser	His	Leu	Leu	Thr	Ala	
123					128					133					138	
caa	cct	tggt	atg	gac	gat	ctt	gga	acc	atg	att	agc	cag	att	gaa	gag	542
Gln	Pro	Trp	Met	Asp	Asp	Leu	Gly	Thr	Met	Ile	Ser	Gln	Ile	Glu	Glu	
139					144					149					154	
atc	gaa	cgt	cat	ctt	gct	tac	ctt	aaa	tggt	att	tca	caa	att	gaa	gaa	590
Ile	Glu	Arg	His	Leu	Ala	Tyr	Leu	Lys	Trp	Ile	Ser	Gln	Ile	Glu	Glu	
155					160					165					170	
cta	agt	gat	aac	att	cag	caa	tat	ctg	atg	acc	aat	aat	gta	ccg	gag	638
Leu	Ser	Asp	Asn	Ile	Gln	Gln	Tyr	Leu	Met	Thr	Asn	Asn	Val	Pro	Glu	
171					176					181					186	
gca	gcc	tcc	act	cta	gtg	tct	atg	gca	gaa	ctt	gac	att	aaa	ctt	cag	686
Ala	Ala	Ser	Thr	Leu	Val	Ser	Met	Ala	Glu	Leu	Asp	Ile	Lys	Leu	Gln	
187					192					197					202	
gaa	tca	tct	tgt	act	cat	ctt	ctt	ggt	ttc	atg	aga	gcc	aca	gtt	aaa	734
Glu	Ser	Ser	Cys	Thr	His	Leu	Leu	Gly	Phe	Met	Arg	Ala	Thr	Val	Lys	
203					208					213					218	
ttc	tggt	cat	aaa	att	ctc	aag	gac	aag	ctt	aca	agt	gat	ttt	gag	gaa	782
Phe	Trp	His	Lys	Ile	Leu	Lys	Asp	Lys	Leu	Thr	Ser	Asp	Phe	Glu	Glu	
219					224					229					234	
att	tta	gca	cag	ctt	cat	tggt	cca	ttc	atc	gca	ccc	cct	caa	tca	caa	830
Ile	Leu	Ala	Gln	Leu	His	Trp	Pro	Phe	Ile	Ala	Pro	Pro	Gln	Ser	Gln	
235					240					245					250	
act	gtt	ggc	tta	agt	cga	cct	gcc	agt	gcc	ccg	gag	ata	tac	agt	tac	878
Thr	Val	Gly	Leu	Ser	Arg	Pro	Ala	Ser	Ala	Pro	Glu	Ile	Tyr	Ser		

Leu	Leu	Thr	Glu	Pro	Lys	Gln	Leu	Pro	Glu	Lys	Tyr	Ser	Leu	Pro	Ala	
283					288					293					298	
tcc	cct	tct	gtc	atc	ctg	ccc	atc	cag	gtt	atg	ctg	act	cct	ctt	cag	1022
Ser	Pro	Ser	Val	Ile	Leu	Pro	Ile	Gln	Val	Met	Leu	Thr	Pro	Leu	Gln	
299					304					309					314	
aag	agg	ttc	agg	tat	cac	ttc	aga	ggg	aac	cgg	cag	act	aat	gtg	tta	1070
Lys	Arg	Phe	Arg	Tyr	His	Phe	Arg	Gly	Asn	Arg	Gln	Thr	Asn	Val	Leu	
315					320					325					330	
agc	aag	cca	gaa	tgg	tac	ttg	gct	caa	gta	ctt	atg	tgg	att	gga	aac	1118
Ser	Lys	Pro	Glu	Trp	Tyr	Leu	Ala	Gln	Val	Leu	Met	Trp	Ile	Gly	Asn	
331					336					341					346	
cat	act	gaa	ttt	ctg	gat	gag	aag	att	cag	cca	ata	tta	gac	aaa	gta	1166
His	Thr	Glu	Phe	Leu	Asp	Glu	Lys	Ile	Gln	Pro	Ile	Leu	Asp	Lys	Val	
347					352					357					362	
ggc	tct	ttg	gta	aac	gca	agg	ctt	gaa	ttt	tct	cgg	ggc	ctt	atg	atg	1214
Gly	Ser	Leu	Val	Asn	Ala	Arg	Leu	Glu	Phe	Ser	Arg	Gly	Leu	Met	Met	
363					368					373					378	
ctg	gtt	ctt	gag	aag	tta	gcc	act	gat	att	cct	tgt	ctg	cta	tat	gat	1262
Leu	Val	Leu	Glu	Lys	Leu	Ala	Thr	Asp	Ile	Pro	Cys	Leu	Leu	Tyr	Asp	
379					384					389					394	
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Glu	Leu	His	Ser	Val	His	Gly	Tyr	Pro	Gly	Thr	Phe	Ala	Ser	Cys	Met	
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Ala	Trp	Val	Ser	Gln	Tyr	Lys	Asp	Ile	Thr	Asp	Val	Asp	Glu	Met	Lys	
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gtt	cca	gat	tgt	gca	gaa	act	ttt	atg	act	cta	ctc	ttg	gtt	ata	act	1550
Val	Pro	Asp	Cys	Ala	Glu	Thr	Phe	Met	Thr	Leu	Leu	Leu	Val	Ile	Thr	
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Ile Leu Asn Ala Val Asn Tyr Ile Ser Thr Val Leu Ala Asp Trp Ala				
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Ala Glu Asn Asn Thr Leu Ser Lys Leu Gln Leu Gly Gln Leu Ala Ser				
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Lys Asp Ala Ala Lys Leu Tyr Lys Lys Glu Arg Trp Leu Ser Leu Pro				
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Pro Val Ala Ala Leu Phe Thr Pro Leu Lys Glu Arg Pro Asp Leu Pro	
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Pro Ile Gln Tyr Glu Pro Val Leu Cys Ser Arg Thr Thr Cys Arg Ala	
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Val Leu Asn Pro Leu Cys Gln Val Asp Tyr Arg Ala Lys Leu Trp Ala	
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Cys Asn Phe Cys Tyr Gln Arg Asn Gln Phe Pro Pro Ser Tyr Ala Gly	
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Glu Gly Ile Ser Lys Ser Tyr Val Phe Arg Gly Thr Lys Asp Met Ser	
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Cys Thr Phe Pro Asn Thr Gly Ala Arg Ile Met Met Phe Ile Gly Gly	
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Phe Asp Gln Glu Ala Ala Ala Ile Leu Met Ala Arg Leu Ala Ile Tyr	
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Gln Leu Ile Arg Leu Cys Gln Lys Phe Gly Glu Tyr His Lys Asp Asp	
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Asn *	
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Leu Pro Val Cys Leu Pro Asp Pro Ser Val Ile Phe Glu Thr Gly Met	
141 146 151 156	
aac tgc tgg gtc act ggc tgg ggc agc ccc agt gag gaa gac ctc ctg	650
Asn Cys Trp Val Thr Gly Trp Gly Ser Pro Ser Glu Glu Asp Leu Leu	
157 162 167 172	
ccc gaa ccg cgg atc ctg cag aaa ctc gct gtg ccc atc atc gac aca	698
Pro Glu Pro Arg Ile Leu Gln Lys Leu Ala Val Pro Ile Ile Asp Thr	
173 178 183 188	
ccc aag tgc acc ctg ctt tac agc aaa gac acc gag ttt ggc tac caa	746
Pro Lys Cys Thr Leu Leu Tyr Ser Lys Asp Thr Glu Phe Gly Tyr Gln	
189 194 199 204	
ccc aaa acc atc aag aat gac atg ctg tgc gcc ggc ttc gag gag ggc	794
Pro Lys Thr Ile Lys Asn Asp Met Leu Cys Ala Gly Phe Glu Glu Gly	
205 210 215 220	
aag aag gat gcc tgc aag ggc gac tcg ggc ggc ccc ctg gtg tgc ctc	842
Lys Lys Asp Ala Cys Lys Gly Asp Ser Gly Gly Pro Leu Val Cys Leu	
221 226 231 236	
gtg ggt cag tcg tgg ctg cag gcg ggg gtg atc agc tgg ggt gag ggc	890
Val Gly Gln Ser Trp Leu Gln Ala Gly Val Ile Ser Trp Gly Glu Gly	
237 242 247 252	
tgt gcc cgc cag aac cgc cca ggt gtc tac atc cgt gtc acc gcc cac	938
Cys Ala Arg Gln Asn Arg Pro Gly Val Tyr Ile Arg Val Thr Ala His	
253 258 263 268	
cac aac tgg atc cat cgg atc atc ccc aaa ctg cag ttc cag cca gcg	986
His Asn Trp Ile His Arg Ile Ile Pro Lys Leu Gln Phe Gln Pro Ala	
269 274 279 284	
agg ttg ggc ggc cag aag tga ga cccccggggc caggagcccc ttgagcagag	1039
Arg Leu Gly Gly Gln Lys *	
285 290	

ctctgcaccc agcctgcccg cccacacccat cctgctggtc ctcccagcgc tgctgttgca 1099
cctgtgagcc ccaccagact catttgtaaa tagcgctcct tcttcccctc tcaaataccc 1159
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ttaaagcgcg gctgcgcccg gcttctgacg tccattgaat cgcgcgggcg gccggcgggcg 180
agcgcgggggc tgcgcccggga tcgctgcgcc ctccgccgct ggcctctgcg acgcgcgccg 240
ctcgcccagag ccacccgccc cgcgcgccgc tccccgcgcc gctgcgctcc tcgcccgcg 300
cctgccccca gg atg gtc cgc gcg agg cac cag ccg ggt ggg ctt tgc 348
Met Val Arg Ala Arg His Gln Pro Gly Gly Leu Cys
1 5 10
ctc ctg ctg ctg ctg ctc tgc cag ttc atg gag gac cgc agt gcc cag 396
Leu Leu Leu Leu Leu Leu Cys Gln Phe Met Glu Asp Arg Ser Ala Gln
13 18 23 28
gct ggg aac tgc tgg ctc cgt caa gcg aag aac ggc cgc tgc cag gtc 444
Ala Gly Asn Cys Trp Leu Arg Gln Ala Lys Asn Gly Arg Cys Gln Val
29 34 39 44
ctg tac aag acc gaa ctg agc aag gag gag tgc tgc agc acc ggc cgg 492
Leu Tyr Lys Thr Glu Leu Ser Lys Glu Glu Cys Cys Ser Thr Gly Arg
45 50 55 60
ctg agc acc tcg tgg acc gag gag gac gtg aat gac aac aca ctc ttc 540
Leu Ser Thr Ser Trp Thr Glu Glu Asp Val Asn Asp Asn Thr Leu Phe
61 66 71 76
aag tgg atg att ttc aac ggg ggc gcc ccc aac tgc atc ccc tgt aaa 588
Lys Trp Met Ile Phe Asn Gly Gly Ala Pro Asn Cys Ile Pro Cys Lys
77 82 87 92
gaa acg tgt gag aac gtg gac tgt gga cct ggg aaa aaa tgc cga atg 636
Glu Thr Cys Glu Asn Val Asp Cys Gly Pro Gly Lys Lys Cys Arg Met
93 98 103 108

aac aag aag aac aaa ccc cgc tgc gtc tgc gcc ccg gat tgt tcc aac	684
Asn Lys Lys Asn Lys Pro Arg Cys Val Cys Ala Pro Asp Cys Ser Asn	
109 114 119 124	
atc acc tgg aag ggt cca gtc tgc ggg ctg gat ggg aaa acc tac cgc	732
Ile Thr Trp Lys Gly Pro Val Cys Gly Leu Asp Gly Lys Thr Tyr Arg	
125 130 135 140	
aat gaa tgt gca ctc cta aag gca aga tgt aaa gag cag cca gaa ctg	780
Asn Glu Cys Ala Leu Leu Lys Ala Arg Cys Lys Glu Gln Pro Glu Leu	
141 146 151 156	
gaa gtc cag tac caa ggc aga tgt aaa aag act tgt cgg gat gtt ttc	828
Glu Val Gln Tyr Gln Gly Arg Cys Lys Lys Thr Cys Arg Asp Val Phe	
157 162 167 172	
tgt cca ggc agc tcc aca tgt gtg gtg gac cag acc aat aat gcc tac	876
Cys Pro Gly Ser Ser Thr Cys Val Val Asp Gln Thr Asn Asn Ala Tyr	
173 178 183 188	
tgt gtg acc tgt aat cgg att tgc cca gag cct gct tcc tct gag caa	924
Cys Val Thr Cys Asn Arg Ile Cys Pro Glu Pro Ala Ser Ser Glu Gln	
189 194 199 204	
tat ctc tgt ggg aat gat gga gtc acc tac tcc agt gcc tgc cac ctg	972
Tyr Leu Cys Gly Asn Asp Gly Val Thr Tyr Ser Ser Ala Cys His Leu	
205 210 215 220	
aga aag gct acc tgc ctg ctg ggc aga tct att gga tta gcc tat gag	1020
Arg Lys Ala Thr Cys Leu Leu Gly Arg Ser Ile Gly Leu Ala Tyr Glu	
221 226 231 236	
gga aag tgt atc aaa gca aag tcc tgt gaa gat atc cag tgc act ggt	1068
Gly Lys Cys Ile Lys Ala Lys Ser Cys Glu Asp Ile Gln Cys Thr Gly	
237 242 247 252	
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Gly Lys Lys Cys Leu Trp Asp Phe Lys Val Gly Arg Gly Arg Cys Ser	
253 258 263 268	
ctc tgt gat gag ctg tgc cct gac agt aag tcg gat gag cct gtc tgt	1164
Leu Cys Asp Glu Leu Cys Pro Asp Ser Lys Ser Asp Glu Pro Val Cys	
269 274 279 284	
gcc agt gac aat gcc act tat gcc agc gag tgt gcc atg aag gaa gct	1212
Ala Ser Asp Asn Ala Thr Tyr Ala Ser Glu Cys Ala Met Lys Glu Ala	
285 290 295 300	
gcc tgc tcc tca ggt gtg cta ctg gaa gta aag cac tcc gga tct tgc	1260
Ala Cys Ser Ser Gly Val Leu Leu Glu Val Lys His Ser Gly Ser Cys	
301 306 311 316	
aac tcc att tcg gaa gac acc gag gaa gag gag gaa gat gaa gac cag	1308
Asn Ser Ile Ser Glu Asp Thr Glu Glu Glu Glu Glu Asp Glu Asp Gln	
317 322 327 332	
gac tac agc ttt cct ata tct tct att cta gag tgg taa actctctata	1357

Asp Tyr Ser Phe Pro Ile Ser Ser Ile Leu Glu Trp *
 333 338 343

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<400> 433

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 ggttggtgta gtcgcg atg ttc ttc tcc gag gcc aga gcc agg tcg cgg 169
 Met Phe Phe Ser Glu Ala Arg Ala Arg Ser Arg
 1 5
 acg tgg gaa gcc agt ccc tcg gaa cac agg aag tgg gtg gaa gta ttt 217
 Thr Trp Glu Ala Ser Pro Ser Glu His Arg Lys Trp Val Glu Val Phe
 12 17 22 27
 aaa gca tgt gat gaa gat cac aaa gga tat ctc agc aga gag gac ttt 265
 Lys Ala Cys Asp Glu Asp His Lys Gly Tyr Leu Ser Arg Glu Asp Phe
 28 33 38 43
 aaa act gct gtt gta atg ctg ttt ggg tac aag ccc tcc aag ata gaa 313
 Lys Thr Ala Val Val Met Leu Phe Gly Tyr Lys Pro Ser Lys Ile Glu
 44 49 54 59
 gtg gat tct gtg atg tct tca ata aat cca aat act tct ggt ata tta 361
 Val Asp Ser Val Met Ser Ser Ile Asn Pro Asn Thr Ser Gly Ile Leu
 60 65 70 75
 ctc gag ggg ttt tta aat att gtc agg aaa aag aag gaa gct caa cga 409
 Leu Glu Gly Phe Leu Asn Ile Val Arg Lys Lys Lys Glu Ala Gln Arg
 76 81 86 91
 tat cgg aac gaa gta aga cac atc ttc aca gcc ttt gac acc tac tat 457
 Tyr Arg Asn Glu Val Arg His Ile Phe Thr Ala Phe Asp Thr Tyr Tyr
 92 97 102 107
 cgt gga ttt tta act ttg gaa gat ttc aaa aaa gca ttt agg cag gtg 505
 Arg Gly Phe Leu Thr Leu Glu Asp Phe Lys Lys Ala Phe Arg Gln Val
 108 113 118 123
 gct ccc aaa tta ccg gaa agg act gtt ctt gag gta ttc agg gaa gta 553
 Ala Pro Lys Leu Pro Glu Arg Thr Val Leu Glu Val Phe Arg Glu Val
 124 129 134 139

gat cga gat tca gat ggt cac gtc agc ttt aga gac ttt gaa tat gcc 601
 Asp Arg Asp Ser Asp Gly His Val Ser Phe Arg Asp Phe Glu Tyr Ala
 140 145 150 155

ctg aac tat gga cag aag gaa gcc taa ctatt gtgaactact tttggtaact 653
 Leu Asn Tyr Gly Gln Lys Glu Ala *
 156 161

ctggggagat caatagattg taatgtcagc agactctact ctactaatga tgtcatgcta 713

cagacttgatg attaaacatt taaaaatttt taaaaaaaaa aaaaaa 759

<210> 434

<211> 2627

<212> DNA

<213> Homo sapiens

<220>

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<222> (110)..(1363)

<400> 434

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ccgggttttc tgccccgttc ccccggggtgg ctgtgggctc ccgagcccc atg tcg 115
 Met Ser
 1

gcc agc cgg ccc cag ggc ccc acg acc cca tgg tgt ctc cca aga agg 163
 Ala Ser Arg Pro Gln Gly Pro Thr Thr Pro Trp Cys Leu Pro Arg Arg
 3 8 13 18

tac atg aag cac aag cgc gac gat ggg ccc gag aag cag gag gac gag 211
 Tyr Met Lys His Lys Arg Asp Asp Gly Pro Glu Lys Gln Glu Asp Glu
 19 24 29 34

gcg gtg gac gtg acg ccg gtg atg acc tgc gtg ttt gtg gtg atg tgc 259
 Ala Val Asp Val Thr Pro Val Met Thr Cys Val Phe Val Val Met Cys
 35 40 45 50

tgc tcc atg ctg gtg ctg ctc tac tat ttc tac gac ctc ctc gtg tac 307
 Cys Ser Met Leu Val Leu Leu Tyr Tyr Phe Tyr Asp Leu Leu Val Tyr
 51 56 61 66

gtg gtc atc ggg atc ttc tgc ctg gcc tcc gcc acc ggc ctc tac agc 355
 Val Val Ile Gly Ile Phe Cys Leu Ala Ser Ala Thr Gly Leu Tyr Ser
 67 72 77 82

tgc ctg gcg ccc tgt/ gtg cgg cgg ctg cct tcg gca agt gca ggt gag 403
 Cys Leu Ala Pro Cys Val Arg Arg Leu Pro Ser Ala Ser Ala Gly Glu
 83 88 93 98

tct gcc ctg ctg gcc ccg acg atc ccc aac aac agc ctg ccc tac ttc 451

Ser	Ala	Leu	Leu	Ala	Pro	Thr	Ile	Pro	Asn	Asn	Ser	Leu	Pro	Tyr	Phe		
99					104					109					114		
cac	aag	cgc	ccg	cag	gcc	cgt	atg	ctg	ctc	ctg	gcg	ctc	ttc	tgc	gtg	499	
His	Lys	Arg	Pro	Gln	Ala	Arg	Met	Leu	Leu	Leu	Ala	Leu	Phe	Cys	Val		
115					120					125					130		
gcc	gtc	agc	gtg	gtg	tgg	ggc	gtc	ttc	cgc	aac	gag	gac	cag	tgg	gcc	547	
Ala	Val	Ser	Val	Val	Trp	Gly	Val	Phe	Arg	Asn	Glu	Asp	Gln	Trp	Ala		
131					136					141					146		
tgg	gtc	ctc	cag	gat	gcc	ctg	ggc	atc	gcc	ttc	tgc	ctc	tac	atg	ctg	595	
Trp	Val	Leu	Gln	Asp	Ala	Leu	Gly	Ile	Ala	Phe	Cys	Leu	Tyr	Met	Leu		
147					152					157					162		
aag	acc	atc	cgt	ctg	ccc	acc	ttc	aag	gcc	tgc	acg	ctg	ctg	ctg	ctg	643	
Lys	Thr	Ile	Arg	Leu	Pro	Thr	Phe	Lys	Ala	Cys	Thr	Leu	Leu	Leu	Leu		
163					168					173					178		
gtg	ctg	ttc	ctc	tac	gac	atc	ttc	ttc	gtg	ttc	atc	acg	ccc	ttc	ctg	691	
Val	Leu	Phe	Leu	Tyr	Asp	Ile	Phe	Phe	Val	Phe	Ile	Thr	Pro	Phe	Leu		
179					184					189					194		
acc	aag	agt	ggg	agc	agc	atc	atg	gtg	gag	gtg	gcc	act	ggg	ccc	tcg	739	
Thr	Lys	Ser	Gly	Ser	Ser	Ile	Met	Val	Glu	Val	Ala	Thr	Gly	Pro	Ser		
195					200					205					210		
gac	tca	gcc	acc	cgt	gag	aag	ctg	ccc	atg	gtc	ctg	aag	gtg	ccc	agg	787	
Asp	Ser	Ala	Thr	Arg	Glu	Lys	Leu	Pro	Met	Val	Leu	Lys	Val	Pro	Arg		
211					216					221					226		
ctg	aac	tcc	tca	cct	ctg	gcc	ctg	tgt	gac	cgg	ccc	ttc	tcc	ctc	ctg	835	
Leu	Asn	Ser	Ser	Pro	Leu	Ala	Leu	Cys	Asp	Arg	Pro	Phe	Ser	Leu	Leu		
227					232					237					242		
ggt	ttc	gga	gac	att	ttg	gtg	cca	ggg	ctg	ctg	gtg	gcc	tac	tgc	cac	883	
Gly	Phe	Gly	Asp	Ile	Leu	Val	Pro	Gly	Leu	Leu	Val	Ala	Tyr	Cys	His		
243					248					253					258		
agg	ttt	gac	atc	cag	gta	cag	tcc	tcc	agg	gta	tac	ttc	gtg	gcc	tgc	931	
Arg	Phe	Asp	Ile	Gln	Val	Gln	Ser	Ser	Arg	Val	Tyr	Phe	Val	Ala	Cys		
259					264					269					274		
acc	atc	gcc	tat	ggc	gtt	ggc	ctc	ctt	gtg	aca	ttc	gtg	gca	ctg	gcc	979	
Thr	Ile	Ala	Tyr	Gly	Val	Gly	Leu	Leu	Val	Thr	Phe	Val	Ala	Leu	Ala		
275					280					285					290		
ctg	atg	cag	cgt	ggc	cag	ccc	gct	ctc	ctc	tac	ctg	gtg	ccc	tgc	acg	1027	
Leu	Met	Gln	Arg	Gly	Gln	Pro	Ala	Leu	Leu	Tyr	Leu	Val	Pro	Cys	Thr		
291					296					301					306		
ctg	gtg	acg	agc	tgc	gct	gtg	gcg	ctc	tgg	cgc	cgg	gag	ctg	ggc	gtg	1075	
Leu	Val	Thr	Ser	Cys	Ala	Val	Ala	Leu	Trp	Arg	Arg	Glu	Leu	Gly	Val		
307					312					317					322		
ttc	tgg	acg	ggc	agc	ggc	ttt	gcg	aaa	gtc	cta	cct	cca	tct	ccg	tgg	1123	
Phe	Trp	Thr	Gly	Ser	Gly	Phe	Ala	Lys	Val	Leu	Pro	Pro	Ser	Pro	Trp		

323	328	333	338	
gcc cca gca cca gcc gac ggc ccg cag cct ccc aaa gac tct gcc acg				1171
Ala Pro Ala Pro Ala Asp Gly Pro Gln Pro Pro Lys Asp Ser Ala Thr				
339	344	349	354	
cca ctc tcc ccg cag ccg ccc agc gaa gaa cca gcc aca tcc ccc tgg				1219
Pro Leu Ser Pro Gln Pro Pro Ser Glu Glu Pro Ala Thr Ser Pro Trp				
355	360	365	370	
cct gct gag cag tcc cca aaa tca cgc acg tcc gag gag atg ggg gct				1267
Pro Ala Glu Gln Ser Pro Lys Ser Arg Thr Ser Glu Glu Met Gly Ala				
371	376	381	386	
gga gcc ccc atg cgg gag cct ggg agc cca gct gaa tcc gag ggc cgg				1315
Gly Ala Pro Met Arg Glu Pro Gly Ser Pro Ala Glu Ser Glu Gly Arg				
387	392	397	402	
gac cag gcc cag ccg tcc ccg gta acc cag cct ggc gcc tcg gcc tag				1363
Asp Gln Ala Gln Pro Ser Pro Val Thr Gln Pro Gly Ala Ser Ala *				
403	408	413	418	
gggaggggtg agacgctcgc tgccgtgccc gccacaccaa gatgttgggg ctgcctggcg				1423
cccactggag acagacagac agacgcctgt ccccggggac cgaggcctgt gccgtcccca				1483
cccgcccca catggtgctc atccttgccg agaccctgc agtcctgcc cgcgcccagc				1543
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cgggtccatc ctccccaccg ggggtccgtcc tcgcaggccc tgcccggcct ctctgcagac				1663
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caaggctggc agtaagtgga caagctgctc ccctggctaa ggccctgccc tgccctcagc				2023
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ggccccgtgt tgcttttctg ctgagagggg cttgggcctc ggttctccct gtggcagcgg				2323
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aggacatctg ccaactggcat ggtctactca ctgatggggg cctcctgact ccagggcaga				2443

gacgtccgtg cgggaactga ccgaggcgtg gccccaggcc ccggcatcct cccctcgctg 2503
cacgtgggtca cttccgaagc agcgctccct gtggccgcag agacagagcc cgcaccctgg 2563
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caga 2627

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taaacccttg gaccccttg ttccctcagc tctaagggcc gcg atg ttg tac cta 175
Met Leu Tyr Leu
1
gaa gac tat ctg gaa atg att gag cag ctt cct atg gat ctg cgg gac 223
Glu Asp Tyr Leu Glu Met Ile Glu Gln Leu Pro Met Asp Leu Arg Asp
5 10 15 20
cgc ttc acg gaa atg cgc gag atg gac ctg cag gtg cag aat gca atg 271
Arg Phe Thr Glu Met Arg Glu Met Asp Leu Gln Val Gln Asn Ala Met
21 26 31 36
gat caa cta gaa caa aga gtc agt gaa ttc ttt atg aat gca aag aaa 319
Asp Gln Leu Glu Gln Arg Val Ser Glu Phe Phe Met Asn Ala Lys Lys
37 42 47 52
aat aaa cct gag tgg agg gaa gag caa atg gca tcc atc aaa aaa gac 367
Asn Lys Pro Glu Trp Arg Glu Glu Gln Met Ala Ser Ile Lys Lys Asp
53 58 63 68
tac tat aaa gct ttg gaa gat gca gat gag aag gtt cag ttg gca aac 415
Tyr Tyr Lys Ala Leu Glu Asp Ala Asp Glu Lys Val Gln Leu Ala Asn
69 74 79 84
cag ata tat gac ttg gta gat cga cac ttg aga aag ctg gat cag gaa 463
Gln Ile Tyr Asp Leu Val Asp Arg His Leu Arg Lys Leu Asp Gln Glu
85 90 95 100
ctg gct aag ttt aaa atg gag ctg gaa gct gat aat gct gga att aca 511
Leu Ala Lys Phe Lys Met Glu Leu Glu Ala Asp Asn Ala Gly Ile Thr
101 106 111 116

gaa ata tta gag agg cga tct ttg gaa tta gac act cct tca cag cca	559
Glu Ile Leu Glu Arg Arg Ser Leu Glu Leu Asp Thr Pro Ser Gln Pro	
117 122 127 132	
gtg aac aat cac cat gct cat tca cat act cca gtg gaa aaa agg aaa	607
Val Asn Asn His His Ala His Ser His Thr Pro Val Glu Lys Arg Lys	
133 138 143 148	
tat aat cca act tct cac cat acg aca aca gat cat att cct gaa aag	655
Tyr Asn Pro Thr Ser His His Thr Thr Thr Asp His Ile Pro Glu Lys	
149 154 159 164	
aaa ttt aaa tct gaa gct ctt cta tcc acc ctt acg tca gat gcc tct	703
Lys Phe Lys Ser Glu Ala Leu Leu Ser Thr Leu Thr Ser Asp Ala Ser	
165 170 175 180	
aag gaa aat aca cta ggt tgt cga aat aat aat tcc aca gcc tct tct	751
Lys Glu Asn Thr Leu Gly Cys Arg Asn Asn Asn Ser Thr Ala Ser Ser	
181 186 191 196	
aac aat gcc tac aat gtg aat tcc tcc caa cct ctg gga tcc tat aac	799
Asn Asn Ala Tyr Asn Val Asn Ser Ser Gln Pro Leu Gly Ser Tyr Asn	
197 202 207 212	
att ggc tcg tta tct tca gga act ggt gca ggg gca att acc atg gca	847
Ile Gly Ser Leu Ser Ser Gly Thr Gly Ala Gly Ala Ile Thr Met Ala	
213 218 223 228	
gct gct caa gca gtt cag gct aca gct cag atg aag gag gga cga aga	895
Ala Ala Gln Ala Val Gln Ala Thr Ala Gln Met Lys Glu Gly Arg Arg	
229 234 239 244	
aca tca agt tta aaa gcc agt tat gaa gca ttt aag aat aat gac ttt	943
Thr Ser Ser Leu Lys Ala Ser Tyr Glu Ala Phe Lys Asn Asn Asp Phe	
245 250 255 260	
cag ttg gga aaa gaa ttt tca atg gcc agg gaa aca gtt ggc tat tca	991
Gln Leu Gly Lys Glu Phe Ser Met Ala Arg Glu Thr Val Gly Tyr Ser	
261 266 271 276	
tca tct tcg gca ctt atg aca aca tta aca cag aat gcc agt tca tca	1039
Ser Ser Ser Ala Leu Met Thr Thr Leu Thr Gln Asn Ala Ser Ser Ser	
277 282 287 292	
gca gcc gac tca cgg agt ggt cga aag agc aaa aac aac aac aag tct	1087
Ala Ala Asp Ser Arg Ser Gly Arg Lys Ser Lys Asn Asn Asn Lys Ser	
293 298 303 308	
tca agc cag cag tca tca tct tcc tcc tcc tct tct tcc tta tca tcg	1135
Ser Ser Gln Gln Ser Ser Ser Ser Ser Ser Ser Ser Ser Leu Ser Ser	
309 314 319 324	
tggt tct tca tca tca act gtt gta caa gaa atc tct caa caa aca act	1183
Cys Ser Ser Ser Ser Thr Val Val Gln Glu Ile Ser Gln Gln Thr Thr	
325 330 335 340	

gta gtg cca gaa tct gat tca aat agt cag gtt gat tgg act tac gac	1231
Val Val Pro Glu Ser Asp Ser Asn Ser Gln Val Asp Trp Thr Tyr Asp	
341 346 351 356	
cca aat gaa cct cga tac tgc att tgt aat cag gta tct tat ggt gag	1279
Pro Asn Glu Pro Arg Tyr Cys Ile Cys Asn Gln Val Ser Tyr Gly Glu	
357 362 367 372	
atg gtg gga tgt gat aac caa gat tgc cct ata gaa tgg ttc cat tat	1327
Met Val Gly Cys Asp Asn Gln Asp Cys Pro Ile Glu Trp Phe His Tyr	
373 378 383 388	
ggc tgc gtt gga ttg aca gag gca cca aaa ggc aaa tgg tac tgt cca	1375
Gly Cys Val Gly Leu Thr Glu Ala Pro Lys Gly Lys ⁴⁵ Trp Tyr Cys Pro	
389 394 399 404	
cag tgc act gct gca atg aag aga aga ggc agc aga cac aaa taa agg	1423
Gln Cys Thr Ala Ala Met Lys Arg Arg Gly Ser Arg His Lys *	
405 410 415	
tggtcctttt gtttgatgaa gaaataaact tcagctgaag attttatata ggactttaaa	1483
aagaagagaa gagaaagaag aaacaatgca tttccaggca accacttaaa ggattttacat	1543
agacaatcct ataagatcct gaacttgaat tttatgggtt gtatttttaat aatgtaagta	1603
aattatttat gcaactcctgg tgtgctatga atattattcc agttagcctt ggattatttc	1663
agtggccaac atatgcagac atttgtactc ctcaaccatt ttctcaaagt aatgggcatt	1723
ctatgattta gacttcaagg aattccaatg atgaagattt taaggaaagt attttatatt	1783
caacagggtat attctgctgc atgtactgta ctccagagct gttatgtaac actgtatata	1843
aatggttgca aaaaaaaaaa a	1864

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tcgtcagcgt ccgcgttttt cccggccccc cccaaccccc ccggacagga ccccttgag	180
cttgtccctc agctgccacc atg agc gac caa gat cac tcc atg gat gaa	230
Met Ser Asp Gln Asp His Ser Met Asp Glu	

1

5

atg aca gct gtg gtg aaa att gaa aaa gga gtt ggt ggc aat aat ggg	278
Met Thr Ala Val Val Lys Ile Glu Lys Gly Val Gly Gly Asn Asn Gly	
11 16 21 26	
ggc aat ggt aat ggt ggt ggt gcc ttt tca cag gct cga agt agc agc	326
Gly Asn Gly Asn Gly Gly Gly Ala Phe Ser Gln Ala Arg Ser Ser Ser	
27 32 37 42	
aca ggc agt agc agc agc act gga gga gga ggg cag gag tcc cag cca	374
Thr Gly Ser Ser Ser Ser Thr Gly Gly Gly Gly Gln Glu Ser Gln Pro	
43 48 53 58	
tcc cct ttg gct ctg ctg gca gca act tgc agc aga att gag tca ccc	422
Ser Pro Leu Ala Leu Leu Ala Ala Thr Cys Ser Arg Ile Glu Ser Pro	
59 64 69 74	
aat gag aac agc aac aac tcc cag ggc ccg agt cag tca ggg gga aca	470
Asn Glu Asn Ser Asn Asn Ser Gln Gly Pro Ser Gln Ser Gly Gly Thr	
75 80 85 90	
ggg gag ctt gac ctc aca gcc aca caa ctt tca cag ggt gcc aat ggc	518
Gly Glu Leu Asp Leu Thr Ala Thr Gln Leu Ser Gln Gly Ala Asn Gly	
91 96 101 106	
tgg cag atc atc tct tcc tcc tct ggg gct acc cct acc tca aag gaa	566
Trp Gln Ile Ile Ser Ser Ser Ser Gly Ala Thr Pro Thr Ser Lys Glu	
107 112 117 122	
cag agt ggc agc agt acc aat ggc agc aat ggc agt gag tct tcc aag	614
Gln Ser Gly Ser Ser Thr Asn Gly Ser Asn Gly Ser Glu Ser Ser Lys	
123 128 133 138	
aat cgc aca gtc tct ggt ggg cag tat gtt gtg gct gcc gct ccc aac	662
Asn Arg Thr Val Ser Gly Gly Gln Tyr Val Val Ala Ala Ala Pro Asn	
139 144 149 154	
tta cag aac cag caa gtt ctg aca gga cta cct gga gtg atg cct aat	710
Leu Gln Asn Gln Gln Val Leu Thr Gly Leu Pro Gly Val Met Pro Asn	
155 160 165 170	
att cag tat caa gta atc cca cag ttc cag acc gtt gat ggg caa cag	758
Ile Gln Tyr Gln Val Ile Pro Gln Phe Gln Thr Val Asp Gly Gln Gln	
171 176 181 186	
ctg cag ttt gct gcc act ggg gcc caa gtg cag cag gat ggt tct ggt	806
Leu Gln Phe Ala Ala Thr Gly Ala Gln Val Gln Gln Asp Gly Ser Gly	
187 192 197 202	
caa ata cag atc ata cca ggt gca aac caa cag att atc aca aat cga	854
Gln Ile Gln Ile Ile Pro Gly Ala Asn Gln Gln Ile Ile Thr Asn Arg	
203 208 213 218	
gga agt gga ggc aac atc att gct gct atg cca aac cta ctc cag cag	902
Gly Ser Gly Gly Asn Ile Ile Ala Ala Met Pro Asn Leu Leu Gln Gln	
219 224 229 234	

gct gtc ccc ctc caa ggc ctg gct aat aat gta ctc tca gga cag act	950
Ala Val Pro Leu Gln Gly Leu Ala Asn Asn Val Leu Ser Gly Gln Thr	
235 240 245 250	
cag tat gtg acc aat gta cca gtg gcc ctg aat ggg aac atc acc ttg	998
Gln Tyr Val Thr Asn Val Pro Val Ala Leu Asn Gly Asn Ile Thr Leu	
251 256 261 266	
cta cct gtc aac agc gtt tct gca gct acc ttg act ccc agc tct cag	1046
Leu Pro Val Asn Ser Val Ser Ala Ala Thr Leu Thr Pro Ser Ser Gln	
267 272 277 282	
gca gtc acg atc agc agc tct ggg tcc cag gag agt ggc tca cag cct	1094
Ala Val Thr Ile Ser Ser Ser Gly Ser Gln Glu Ser Gly Ser Gln Pro	
283 288 293 298	
gtc acc tca ggg act acc atc agt tct gcc agc ttg gta tca tca caa	1142
Val Thr Ser Gly Thr Thr Ile Ser Ser Ala Ser Leu Val Ser Ser Gln	
299 304 309 314	
gcc agt tcc agc tcc ttt ttc acc aat gcc aat agc tac tca act act	1190
Ala Ser Ser Ser Ser Phe Phe Thr Asn Ala Asn Ser Tyr Ser Thr Thr	
315 320 325 330	
act acc acc agc aac atg gga att atg aac ttt act acc agt gga tca	1238
Thr Thr Thr Ser Asn Met Gly Ile Met Asn Phe Thr Thr Ser Gly Ser	
331 336 341 346	
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Ser Gly Thr Asn Ser Gln Gly Gln Thr Pro Gln Arg Val Ser Gly Leu	
347 352 357 362	
cag ggg tct gat gct ctg aac atc cag caa aac cag aca tct gga ggc	1334
Gln Gly Ser Asp Ala Leu Asn Ile Gln Gln Asn Gln Thr Ser Gly Gly	
363 368 373 378	
tca ttg caa gca ggc cag cag aaa gaa gga gag caa aac cag cag aca	1382
Ser Leu Gln Ala Gly Gln Gln Lys Glu Gly Glu Gln Asn Gln Gln Thr	
379 384 389 394	
cag cag caa caa att ctt atc cag cct cag cta gtt caa ggg gga cag	1430
Gln Gln Gln Gln Ile Leu Ile Gln Pro Gln Leu Val Gln Gly Gly Gln	
395 400 405 410	
gcc ctc cag gcc ctc caa gca gca cca ttg tca ggg cag acc ttt aca	1478
Ala Leu Gln Ala Leu Gln Ala Ala Pro Leu Ser Gly Gln Thr Phe Thr	
411 416 421 426	
act caa gcc atc tcc cag gaa acc ctc cag aac ctc cag ctt cag gct	1526
Thr Gln Ala Ile Ser Gln Glu Thr Leu Gln Asn Leu Gln Leu Gln Ala	
427 432 437 442	
gtt cca aac tct ggt ccc atc atc atc cgg aca cca aca gtg ggg ccc	1574
Val Pro Asn Ser Gly Pro Ile Ile Ile Arg Thr Pro Thr Val Gly Pro	
443 448 453 458	

aat gga cag gtc agt tgg cag act cta cag ctg cag aac ctc caa gtt	1622
Asn Gly Gln Val Ser Trp Gln Thr Leu Gln Leu Gln Asn Leu Gln Val	
459 464 469 474	
cag aac cca caa gcc caa aca atc acc tta gcc cca atg cag ggt gtt	1670
Gln Asn Pro Gln Ala Gln Thr Ile Thr Leu Ala Pro Met Gln Gly Val	
475 480 485 490	
tcc ttg ggg cag acc agc agc agc aac acc act ctc aca ccc att gcc	1718
Ser Leu Gly Gln Thr Ser Ser Ser Asn Thr Thr Leu Thr Pro Ile Ala	
491 496 501 506	
tca gct gct tcc att cct gct ggc aca gtc act gtg aat gct gct caa	1766
Ser Ala Ala Ser Ile Pro Ala Gly Thr Val Thr Val Asn Ala Ala Gln	
507 512 517 522	
ctc tcc tcc atg cca ggc ctc cag acc att aac ctc agt gca ttg ggt	1814
Leu Ser Ser Met Pro Gly Leu Gln Thr Ile Asn Leu Ser Ala Leu Gly	
523 528 533 538	
act tca gga atc cag gtg cac cca att caa ggc ctg ccg ttg gct ata	1862
Thr Ser Gly Ile Gln Val His Pro Ile Gln Gly Leu Pro Leu Ala Ile	
539 544 549 554	
gca aat gcc cca ggt gat cat gga gct cag ctt ggt ctc cat ggg gct	1910
Ala Asn Ala Pro Gly Asp His Gly Ala Gln Leu Gly Leu His Gly Ala	
555 560 565 570	
ggg ggt gat gga ata cat gat gac aca gca ggt gga gag gaa gga gaa	1958
Gly Gly Asp Gly Ile His Asp Asp Thr Ala Gly Gly Glu Glu Gly Glu	
571 576 581 586	
aac agc cca gat gcc caa ccc caa gcc ggt cgg agg acc cgg cgg gaa	2006
Asn Ser Pro Asp Ala Gln Pro Gln Ala Gly Arg Arg Thr Arg Arg Glu	
587 592 597 602	
gca tgc acc tgc ccc tac tgt aaa gac agt gaa gga agg ggc tcg ggg	2054
Ala Cys Thr Cys Pro Tyr Cys Lys Asp Ser Glu Gly Arg Gly Ser Gly	
603 608 613 618	
gat cct ggc aaa aag aaa cag cat att tgc cac atc caa ggc tgt ggg	2102
Asp Pro Gly Lys Lys Lys Gln His Ile Cys His Ile Gln Gly Cys Gly	
619 624 629 634	
aaa gtg tat ggc aag acc tct cac ctg cgg gca cac ttg cgc tgg cat	2150
Lys Val Tyr Gly Lys Thr Ser His Leu Arg Ala His Leu Arg Trp His	
635 640 645 650	
aca ggc gag agg cca ttt atg tgt acc tgg tca tac tgt ggg aaa cgc	2198
Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys Gly Lys Arg	
651 656 661 666	
ttc aca cgt tcg gat gag cta cag agg cac aaa cgt aca cac aca ggt	2246
Phe Thr Arg Ser Asp Glu Leu Gln Arg His Lys Arg Thr His Thr Gly	
667 672 677 682	
gag aag aaa ttt gcc tgc cct gag tgt cct aag cgc ttc atg agg agt	2294

Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met Arg Ser	
683 688 693 698	
gac cac ctg tca aaa cat atc aag acc cac cag aat aag aag gga ggc	2342
Asp His Leu Ser Lys His Ile Lys Thr His Gln Asn Lys Lys Gly Gly	
699 704 709 714	
cca ggt gta gct ctg agt gtg ggc act ttg ccc ctg gac agt ggg gca	2390
Pro Gly Val Ala Leu Ser Val Gly Thr Leu Pro Leu Asp Ser Gly Ala	
715 720 725 730	
ggt tca gaa ggc agt ggc act gcc act cct tca gcc ctt att acc acc	2438
Gly Ser Glu Gly Ser Gly Thr Ala Thr Pro Ser Ala Leu Ile Thr Thr	
731 736 741 746	
aat atg gta gcc atg gag gcc atc tgt cca gag ggc att gcc cgt ctt	2486
Asn Met Val Ala Met Glu Ala Ile Cys Pro Glu Gly Ile Ala Arg Leu	
747 752 757 762	
gcc aac agt ggc atc aac gtc atg cag gtg gca gat ctg cag tcc att	2534
Ala Asn Ser Gly Ile Asn Val Met Gln Val Ala Asp Leu Gln Ser Ile	
763 768 773 778	
aat atc agt ggc aat ggc ttc tga gatcaggcac ccgggggccag agacatatgg	2588
Asn Ile Ser Gly Asn Gly Phe *	
779 784	
gccatacccc ttaaccccg gatgcaaggt agcatgggtc caagagacat ggaagagaga	2648
gccatgaagc attaaaatgc atggtgttga gaagaatcag gagagggata caagagagga	2708
gatgggggtcc cggcacccat ctgtatcatc agtgcctctt tgaaggtggg aaacattagt	2768
gaaaattctg ttggtgccac gctttgatga gcatttgttt gacccagtt tcttcttaca	2828
cttcttacct cagcctacct ttcttgcatc tctcttctca gctcttccat gatggattcc	2888
ccccctttc ctaaagccat catgccttga taaatatata tgatcattga aatacttttt	2948
aacaaaaaac agattctata ttattatata tatatatata tatatatata gatatataga	3008
gatgcattca caggggttgg ctgggaggag gaagaccatt ctgtgaccaa aataccttgg	3068
tcattttttt tatattgctt tatttcctta tggctgagcc ttgttgtgac acatcaagct	3128
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ttcatatata catacataat gtttttctt tottaatttt gtctttttgt ttgggatcag	3248
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<210> 437
 <211> 1650
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (45)..(857)

<400> 437

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Met Ala Pro Trp
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Gly Lys Arg Leu Ala Gly Val Arg Gly Val Leu Leu Asp Ile Ser Gly
5 10 15 20

gtg ctg tac gac agc ggc gcg ggc ggc ggc acg gcc atc gcc ggc tcg 152
Val Leu Tyr Asp Ser Gly Ala Gly Gly Gly Thr Ala Ile Ala Gly Ser
21 26 31 36

gtg gag gcg gtg gcc aga ctg aag cgt tcc cgg ctg aag gtg agg ttc 200
Val Glu Ala Val Ala Arg Leu Lys Arg Ser Arg Leu Lys Val Arg Phe
37 42 47 52

tgc acc aac gag tcg cag aag tcc cgg gca gag ctg gtg ggg cag ctt 248
Cys Thr Asn Glu Ser Gln Lys Ser Arg Ala Glu Leu Val Gly Gln Leu
53 58 63 68

cag agg ctg gga ttt gac atc tct gag cag gag gtg acc gcc ccg gca 296
Gln Arg Leu Gly Phe Asp Ile Ser Glu Gln Glu Val Thr Ala Pro Ala
69 74 79 84

cca gct gcc tgc cag atc ctg aag gag cga ggc ctg cga cca tac ctg 344
Pro Ala Ala Cys Gln Ile Leu Lys Glu Arg Gly Leu Arg Pro Tyr Leu
85 90 95 100

ctc atc cat gac gga gtc cgc tca gaa ttt gat cag atc gac aca tcc 392
Leu Ile His Asp Gly Val Arg Ser Glu Phe Asp Gln Ile Asp Thr Ser
101 106 111 116

aac cca aac tgt gtg gta att gca gac gca gga gaa agc ttt tct tat 440
Asn Pro Asn Cys Val Val Ile Ala Asp Ala Gly Glu Ser Phe Ser Tyr
117 122 127 132

caa aac atg aat aac gcc ttc cag gtg ctc atg gag ctg gaa aaa cct 488
Gln Asn Met Asn Asn Ala Phe Gln Val Leu Met Glu Leu Glu Lys Pro
133 138 143 148

gtg ctc ata tca ctg gga aaa ggg cgt tac tac aag gag acc tct ggc 536
Val Leu Ile Ser Leu Gly Lys Gly Arg Tyr Tyr Lys Glu Thr Ser Gly
149 154 159 164

ctg atg ctg gac gtt ggt ccc tac atg aag gcg ctt gag tat gcc tgt 584
Leu Met Leu Asp Val Gly Pro Tyr Met Lys Ala Leu Glu Tyr Ala Cys
165 170 175 180

ggc atc aaa gcc gag gtg ggg ggg aag cct tct cct gag ttt ttc aag 632
Gly Ile Lys Ala Glu Val Gly Gly Lys Pro Ser Pro Glu Phe Phe Lys

181	186	191	196	
tct gcc ctg caa gcg ata gga gtg gaa gcc cac cag gcc gtc atg att				680
Ser Ala Leu Gln Ala Ile Gly Val Glu Ala His Gln Ala Val Met Ile				
197	202	207	212	
ggg gac gat atc gtg ggc gac gtc ggc ggt gcc cag cgg tgt gga atg				728
Gly Asp Asp Ile Val Gly Asp Val Gly Gly Ala Gln Arg Cys Gly Met				
213	218	223	228	
aga gcg ctg cag gtg cgc acc ggg aag ttc agg ccc agt gac gag cac				776
Arg Ala Leu Gln Val Arg Thr Gly Lys Phe Arg Pro Ser Asp Glu His				
229	234	239	244	
cat ccg gaa gtg aag gct gat ggg tac gtg gac aac ctc gca gag gca				824
His Pro Glu Val Lys Ala Asp Gly Tyr Val Asp Asn Leu Ala Glu Ala				
245	250	255	260	
gtg gac ctg ctg ctg cag cac gcc gac aag tga tggcctcc tgggagagcc				875
Val Asp Leu Leu Leu Gln His Ala Asp Lys *				
261	266	271		
ccgcctcctc caccctgcc tctcctccac cctgcctcc cctccacccc tgctctcct				935
ccaccgccc aggagagccc cacctcctcc acccctgcct ctctccacc cctgcctccc				995
ctccacctgc ccagtgccc agaccaccca aggcctgac agccctgcct tctgcctct				1055
gccctgcatg ggcaggcatt tgttccctac ctgggtggcc tgctccctg cctgggccct				1115
gacttcagct ccctgtagtg aagtccagga ggggtggaca ggctgtcag gcctctggga				1175
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cagcctcct gcgactgcc aggcacactg ccaccaccc caccctcgaa acaatgccag				1415
ccgctgctt tttctatcct ccagtcacc ttgagaca aagaccagg gcagctcccc				1475
agggcactgt gaaggctccc atgccacaca gtgagaactg tagcctctgc gtccaaggca				1535
cacagggtag tttctggacc cactgctgga cagacttgaa ggtgtcatgc ccggtgtgtg				1595
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<211> 603

<212> DNA

<213> Homo sapiens

<220>

<221> CDS
 <222> (251) .. (469)

<400> 438

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gagtgagact ccctctcaaa aaataaaaat aaaatataaa taaataaaac aattggggcc	180
tcactatattt atatttttgt ctcaaaaaaac aactctctct tgtggtgtgt gcttgattct	240
gcttcttgtc atg tct tct cac aag tct ttt aag agt aag cga ttc ctg	289
Met Ser Ser His Lys Ser Phe Lys Ser Lys Arg Phe Leu	
1 5 10	
gcc aag aaa caa aag cca aat cgt ccc att ctc cag tgg atc tgg ttg	337
Ala Lys Lys Gln Lys Pro Asn Arg Pro Ile Leu Gln Trp Ile Trp Leu	
14 19 24 29	
aaa act ggt aat aaa atc agg cac aac tgg aaa gga gac att gca gaa	385
Lys Thr Gly Asn Lys Ile Arg His Asn Trp Lys Gly Asp Ile Ala Glu	
30 35 40 45	
cag cca agc tgg gtc tat aag gaa ctg cac gtg agc tgg cac aca tat	433
Gln Pro Ser Trp Val Tyr Lys Glu Leu His Val Ser Trp His Thr Tyr	
46 51 56 61	
tca cgc tgt atc aag gtc acg gcc atc tta cta tag caag ctgaaaacgt	483
Ser Arg Cys Ile Lys Val Thr Ala Ile Leu Leu *	
62 67 72	
caccactgtc tgaacagttg gacgtgtttt attgggaata tattttttct ctttgcttat	543
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<210> 439
 <211> 1816
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (178) .. (729)

<400> 439

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gcggaatccc cggggaaaacg cgcagatgta agctgggtgga gccgccagct ggagacg	177
atg gtg gac cac ttg gcc aac acg gag atc aac agc cag cgc atc gcg	225
Met Val Asp His Leu Ala Asn Thr Glu Ile Asn Ser Gln Arg Ile Ala	
1 5 10 15	

gca gtg gag agc tgc ttc ggg gcc tcg ggg cag ccg ctg gcg ctg cca	273
Ala Val Glu Ser Cys Phe Gly Ala Ser Gly Gln Pro Leu Ala Leu Pro	
17 22 27 32	
ggc cga gtg ctg ctg ggc gag ggc gtg ctg acc aaa gag tgc cgc aag	321
Gly Arg Val Leu Leu Gly Glu Gly Val Leu Thr Lys Glu Cys Arg Lys	
33 38 43 48	
aag gcc aag ccg cgc atc ttc ttc ctc ttt aac gac atc ctg gtg tat	369
Lys Ala Lys Pro Arg Ile Phe Phe Leu Phe Asn Asp Ile Leu Val Tyr	
49 54 59 64	
ggc agc atc gtg ctc aac aag cgc aag tac cgc agc ^h cag cac atc atc	417
Gly Ser Ile Val Leu Asn Lys Arg Lys Tyr Arg Ser Gln His Ile Ile	
65 70 75 80	
ccc ctg gag gag gtc aca ctg gag ctg ttg ccg gag acg ctg cag gcc	465
Pro Leu Glu Glu Val Thr Leu Glu Leu Leu Pro Glu Thr Leu Gln Ala	
81 86 91 96	
aag aac cgc tgg atg atc aag acg gcc aag aag tcc ttt gtg gtg tcg	513
Lys Asn Arg Trp Met Ile Lys Thr Ala Lys Lys Ser Phe Val Val Ser	
97 102 107 112	
gcc gcc tcc gct acg gag cgc cag gaa tgg att agc cac atc gag gag	561
Ala Ala Ser Ala Thr Glu Arg Gln Glu Trp Ile Ser His Ile Glu Glu	
113 118 123 128	
tgc gtg cgg cgg caa ctg agg gcc acg ggc cgc ccg ccc agc acg gag	609
Cys Val Arg Arg Gln Leu Arg Ala Thr Gly Arg Pro Pro Ser Thr Glu	
129 134 139 144	
cac gcg gca ccc tgg atc ccc gac aag gcc acg gac atc tgc atg cgc	657
His Ala Ala Pro Trp Ile Pro Asp Lys Ala Thr Asp Ile Cys Met Arg	
145 150 155 160	
tgc acg cag acg cgc ttc tct gcc ctc acg agg cgc cac cac tgc cgc	705
Cys Thr Gln Thr Arg Phe Ser Ala Leu Thr Arg Arg His His Cys Arg	
161 166 171 176	
aag tgc gtt cgt ggt ctg cgc tga gtgctcgcgc cagcgcctcc tgctcccgcg	759
Lys Cys Val Arg Gly Leu Arg *	
177 182	
cctgtccccc aagcccgtgc gcgtctgcag cctctgctac cgcgaaactgg ccgcccagca	819
gcggcaggag gaggcggagg agcagggcgc ggggtcccca gggcagccag cccacctggc	879
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<210> 440
<211> 833
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (258)..(467)

<220>
<221> misc_feature
<222> (1)...(833)
<223> n = a,t,c or g

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gactctgtgg tcgccacatc cttctcctgc atgtggcaag ccaccgggcc atgggctgct 180
gaccgtcttc gctggccttc gtgggtgcct cccactagcc taccagcaga cctcggcctt 240
cgcccggcag ccccgcg atg agc tgg agc gcg tgc gtg tca gct gca cca 290
Met Ser Trp Ser Ala Cys Val Ser Ala Ala Pro
1 5
tca tct tcc tgg cca gca tct tcc agc tgg cca tgt gga cca cgg cgc 338
Ser Ser Ser Trp Pro Ala Ser Ser Ser Trp Pro Cys Gly Pro Arg Arg
12 17 22 27

tgc tgc acc agg cgg aga cgc tgc agc cct cgg tgt ggt ttg gcg gcc	386
Cys Cys Thr Arg Arg Arg Arg Cys Ser Pro Arg Cys Gly Leu Ala Ala	
28 33 38 43	
ggg agc atg tgc tca tgt tcg cca agc tgg cgc tgt acc cct gtg cca	434
Gly Ser Met Cys Ser Cys Ser Pro Ser Trp Arg Cys Thr Pro Val Pro	
44 49 54 59	
gcc tgc tgg cct tcg cct cca cct gcc tgc tga gcagggttc agtgtgggca	485
Ala Cys Trp Pro Ser Pro Pro Pro Ala Cys *	
60 65 70	
tcttccacct catgcagatc gccgtgccct gcgccttcct gttgctgcgc ctgctcgtgg	545
gcctggccct ggccaccctg cgggtcctgc ggggcctcgc ccggcccgaa cccccccgc	605
cagccccac gggccaggac gaccacagt ccagctcct cctgcccc tgctagcagc	665
cacagagccc actcccagcc gtcctacca gagatggacc agggaggaca ggatgctggg	725
caggggaagc caagtcacgg gcaggccgca gtggttcttg cgtggcctgg ttttattttc	785
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gtgagagcag gtcagaggcc gggcccagcg ccagcgaggc atctggggag ccgtgccctt	180
gttagcgctg aaaatggaag cccctccatt caggcctgga cagatgatgg gcagcgaatg	240
tgctcacatg ctgagctgtg gggctggact aggtaccaa atcagggtag aacactgaga	300
cgtctgtggg cgggtgtgtg cacatccaca cttgtacact cacattcac	355
atg cac	
Met His	

ata tgt gca cac gca tgc aat tca tac aca tgc aca gtt gtg ctc aca	403
Ile Cys Ala His Ala Cys Asn Ser Tyr Thr Cys Thr Val Val Leu Thr	
3 8 13 18	
gcc tcg cac gcc ctt gca cac tcg cac tta tac aca tgc atg gtc atg	451
Ala Ser His Ala Leu Ala His Ser His Leu Tyr Thr Cys Met Val Met	
19 24 29 34	
ctc aca gcc tcg cac acg ccc tcg cac act cat cca cac aca gct gtg	499
Leu Thr Ala Ser His Thr Pro Ser His Thr His Pro His Thr Ala Val	
35 40 45 50	
cac aag gaa cac aga gca gat gtt ctc aga ggg act ctg aca cct ttg	547
His Lys Glu His Arg Ala Asp Val Leu Arg Gly Thr Leu Thr Pro Leu	
51 56 61 66	
aga tga ggggttttta atcactggaa ggctctcttg ggtctaacag gttcagagaa	603
Arg *	
67	
tgtaacacct gggttttcaaa acattttttca aagaaataga gaattcccat acacaggcat	663
acgtgacgtt atgaggccgg tggaggcctc gctcgggtgtt gccctgtatg gttgagctgt	723
ggtttaaggt gaactctgga gtgtgggctg cangtgaggg ctcgctccct gggagctggt	783
gggaggagct ggaggctggc gccgccctgc tcaaagctgc ctgcttgggc tcgtctgagg	843
cggttccgag ctgcaggtgt ctccaccaac ctgctgtgct acacagcggg gtcctgggca	903
gcctcaccac tgcgtgtctt gggttcctct tctgtaaaac agaggctgcc tccgaccctt	963
tggacaaaca gggaagagcc gtaacacgca ggatgtgaat ggaaccttaa gcttgtgcct	1023
gaagggtcga gctactggtg gccgtgatgc ctgaccgacg cgaggctcgt cggaaggtag	1083
ggcacgatgg cagactgagc cctggtgtct atgaagcacc gagcaatgcg aggagggcag	1143
cagggaggaa cgcggcacgc gagtggtgca gacacggaga gaacacaacg atcggacgtc	1203
gctgagggat gtatgggacg gtgagacttc actcagt	1241

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<211> 1990

<212> DNA

<213> Homo sapiens

<220>

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<400> 442

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cca gat gtg cat tgg atg ggt aca gga gcc tgc gat ctg cac aga tat	1133
Pro Asp Val His Trp Met Gly Thr Gly Ala Cys Asp Leu His Arg Tyr	
151 156 161 166	
ggt ccc ttg ctt cac ctc tca gga gca gct ctg ctc tgg ggg acc acc	1181
Gly Pro Leu Leu His Leu Ser Gly Ala Ala Leu Leu Trp Gly Thr Thr	
167 172 177 182	
tgg agc ctc cct atg aaa tag aa gcacgtgact tcctggctgg gcaatccgat	1234
Trp Ser Leu Pro Met Lys *	
183 188	
actcctgctg cccagatgcc tgcccttttc ccgagagagg ggtgcccggg agaccaggta	1294
acaccaacca ggtccctgac agcccagctc caggagacca tgactttcaa ggatgtggag	1354
gtgaccttct cccaggacga gtgggggttg ctggactctg ctgagaggaa cctgtacagg	1414
gatgtgatgc tggagaatta taggaacatg gcttccctgg tgggaccatt caccaaacct	1474
gctctgatct cctggttgga agcaaggagg ccatggggcc tgaacatgca ggcagctcag	1534
cctaagggga atccagttgc tgctcctaca ggagatgacc tccagggtaa aacaaacaaa	1594
ttcatcttaa atcaggaacc ttggaagaa gcagaaacct tagctgtgtc atcaggatgt	1654
cctgcgacaa gtgtttctga ggggaattgat cgatcgatcc tcagagaatc ttttcaacag	1714
aatcagagca gggacaagat gagggacctc agggagggac agatggagcc ccccaagtct	1774
gaactcatag gctggggagg aggagaaact tctaggtggg ttcgaggggg tgcgagccca	1834
cctccagccc tcagccctct tttccgcata acttggtcag ggcacaagga cttgaaggac	1894
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ggctctcgca gatcgagtga gtacggctcg ccaagttgga gcgctctcg gatagacaca	180
gcaactattc agctgcgagg ggacgggaga ggtggtgagc actctcgca gatttgaagg	240
agcggcggag gccagaggga ggagaggacc ggaagtcctt catctcaagc atccaatgct	300
gaaagcggcc tgattttctc taccggaagc ccttttccag aggctgggaa cacggcccac	360
ctagcaggaa gtcccacctc cttgagctcc gccacccttc ccgaagtttt tctgtcacct	420
gtgttaggct ccgtcccctt tccgcgtttt atccccgtac cagaaaagga tacatttagt	480
gcctcccacc cagctccact aaacgggttg gatattctcat tctttgagtt ggtgttcctt	540
ccccggcgcc cccatgtagc tgggaagtgg gacctggggg tggttggacc cctgggatcc	600
taaaggaggg gcagggaggg cgcagaactc cgcttctgct ccttgctacc aggacgcgcg	660
gcctctcag cctctttcct cccgctgcc atg cac cct gca gcc ttc ccg ctt	713
Met His Pro Ala Ala Phe Pro Leu	
1 5	
cct gtg gtt gtg gcc gct gtg ctg tgg gga gcg gcc ccg acc cgg ggg	761
Pro Val Val Val Ala Ala Val Leu Trp Gly Ala Ala Pro Thr Arg Gly	
9 14 19 24	
ctc att cga gcg acc tcg gac cac aat gcc agc atg gac ttt gca gac	809
Leu Ile Arg Ala Thr Ser Asp His Asn Ala Ser Met Asp Phe Ala Asp	
25 30 35 40	
ctt cca gct ctg ttt ggg gct acc ttg agc cag gag ggc ctc cag ggg	857
Leu Pro Ala Leu Phe Gly Ala Thr Leu Ser Gln Glu Gly Leu Gln Gly	
41 46 51 56	
ttc ctt gtg gag gct cac cca gac aat gcc tgc agc ccc att gcc cca	905
Phe Leu Val Glu Ala His Pro Asp Asn Ala Cys Ser Pro Ile Ala Pro	
57 62 67 72	
cca ccc cca gcc ccg gtc aat ggg tca gtc ttt att gcg ctg ctt cga	953
Pro Pro Pro Ala Pro Val Asn Gly Ser Val Phe Ile Ala Leu Leu Arg	
73 78 83 88	
aga ttc gac tgc aac ttt gac ctc aag gtc cta aat gcc cag aag gct	1001
Arg Phe Asp Cys Asn Phe Asp Leu Lys Val Leu Asn Ala Gln Lys Ala	
89 94 99 104	
gga tat ggt gcc gct gta gta cac aat gtg aat tgc aat gaa ctt ctg	1049
Gly Tyr Gly Ala Ala Val Val His Asn Val Asn Cys Asn Glu Leu Leu	
105 110 115 120	
aac atg gtg tgg aat agt ggt aag gct ggg gga atc tat aca gct ggg	1097
Asn Met Val Trp Asn Ser Gly Lys Ala Gly Gly Ile Tyr Thr Ala Gly	
121 126 131 136	

Met Thr Lys Gln Gly Lys Glu Thr
1 5

aac aaa gag aag gaa caa ttt agg gga caa gaa gag aaa ggg gag aac	101
Asn Lys Glu Lys Glu Gln Phe Arg Gly Gln Glu Lys Gly Glu Asn	
9 14 19 24	
aag gac agc acc ttg aca agg acc ccg ctc gag ccg ctg gag aaa aac	149
Lys Asp Ser Thr Leu Thr Arg Thr Pro Leu Glu Pro Leu Glu Lys Asn	
25 30 35 40	
aag caa atc cta gtg ctg ggc ctg gat gga gca gga aaa acc agt gtc	197
Lys Gln Ile Leu Val Leu Gly Leu Asp Gly Ala Gly Lys Thr Ser Val	
41 46 51 56	
ctg cac tct cta gct tca aac aga gtc cag cac agt gtg gca ccc acc	245
Leu His Ser Leu Ala Ser Asn Arg Val Gln His Ser Val Ala Pro Thr	
57 62 67 72	
caa ggt ttc cat gca gtt tgc atc aac act gaa gac agc cag atg gag	293
Gln Gly Phe His Ala Val Cys Ile Asn Thr Glu Asp Ser Gln Met Glu	
73 78 83 88	
ttc ctg gag att ggt ggc agt aaa cct ttt cgg tcc tac tgg gaa atg	341
Phe Leu Glu Ile Gly Gly Ser Lys Pro Phe Arg Ser Tyr Trp Glu Met	
89 94 99 104	
tac cta tcc aag gga ttg ctg ctg atc ttt gtg gtg gat tca gca gat	389
Tyr Leu Ser Lys Gly Leu Leu Leu Ile Phe Val Val Asp Ser Ala Asp	
105 110 115 120	
cac agc cga tta cct gaa gcc aag aaa tac ctt cat cag cta att gca	437
His Ser Arg Leu Pro Glu Ala Lys Lys Tyr Leu His Gln Leu Ile Ala	
121 126 131 136	
gca aac cca gta ctt cct ctg gtt gtg ttt gca aac aaa cag gat ctt	485
Ala Asn Pro Val Leu Pro Leu Val Val Phe Ala Asn Lys Gln Asp Leu	
137 142 147 152	
gaa gca gcc tat cac att aca gat atc cat gaa gct ttg gca tta tct	533
Glu Ala Ala Tyr His Ile Thr Asp Ile His Glu Ala Leu Ala Leu Ser	
153 158 163 168	
gaa gtg gga aat gac agg aag atg ttc ttg ttt gga acc tac ctg act	581
Glu Val Gly Asn Asp Arg Lys Met Phe Leu Phe Gly Thr Tyr Leu Thr	
169 174 179 184	
aag aat ggc tca gag ata ccc tcc acc atg caa gat gcc aaa gac ttg	629
Lys Asn Gly Ser Glu Ile Pro Ser Thr Met Gln Asp Ala Lys Asp Leu	
185 190 195 200	
att gca cag ctg gct gca gat gtg cag tga c caggactcag cccactgtgc	680
Ile Ala Gln Leu Ala Ala Asp Val Gln *	
201 206	
ggctcacgac tgagatgtca tcagtgttga atggcaggct tgaagccaaa gggtttccacc	740

tcaaataaaa attaagccat ttcctattaa aaaaaaaaaa aaaaaaa

787

<210> 445
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<212> DNA
<213> Homo sapiens

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accccatctg gcccctccct catccctccc cttggacttt gcccttctta ctggccaggc 180
aggggggcca gagtccaggc ttgactcatt cccaccttgt cctgggctga gatcccaggt 240
ttgtaacaga aaacaccact aaagccccag cacaggagag aaccacccag ccagaagtt 300
ccagggaagg aactctccgg tccacc atg gag tac ctc tca gct ctg aac ccc 353
Met Glu Tyr Leu Ser Ala Leu Asn Pro
1 5
agt gac tta ctc agg tca gta tct aat ata agc tcg gag ttt gga cgg 401
Ser Asp Leu Leu Arg Ser Val Ser Asn Ile Ser Ser Glu Phe Gly Arg
10 15 20 25
agg gtc tgg acc tca gct cca cca ccc cag cga cct ttc cgt gtc tgt 449
Arg Val Trp Thr Ser Ala Pro Pro Pro Gln Arg Pro Phe Arg Val Cys
26 31 36 41
gat cac aag cgg acc atc cgg aaa ggc ctg aca gct gcc acc cgc cag 497
Asp His Lys Arg Thr Ile Arg Lys Gly Leu Thr Ala Ala Thr Arg Gln
42 47 52 57
gag ctg cta gcc aaa gca ttg gag acc cta ctg ctg aat gga gtg cta 545
Glu Leu Leu Ala Lys Ala Leu Glu Thr Leu Leu Leu Asn Gly Val Leu
58 63 68 73
acc ctg gtg cta gag gag gat gga act gca gtg gac agt gag gac ttc 593
Thr Leu Val Leu Glu Glu Asp Gly Thr Ala Val Asp Ser Glu Asp Phe
74 79 84 89
ttc cag ctg ctg gag gat gac acg tgc ctg atg gtg ttg cag tct ggt 641
Phe Gln Leu Leu Glu Asp Asp Thr Cys Leu Met Val Leu Gln Ser Gly
90 95 100 105

cag agc tgg agc cct aca agg agt gga gtg ctg tca tat ggc ctg gga	689
Gln Ser Trp Ser Pro Thr Arg Ser Gly Val Leu Ser Tyr Gly Leu Gly	
106 111 116 121	
cgg gag agg ccc aag cac agc aag gac atc gcc cga ttc acc ttt gac	737
Arg Glu Arg Pro Lys His Ser Lys Asp Ile Ala Arg Phe Thr Phe Asp	
122 127 132 137	
gtg tac aag caa aac cct cga gac ctc ttt ggc agc ctg aat gtc aaa	785
Val Tyr Lys Gln Asn Pro Arg Asp Leu Phe Gly Ser Leu Asn Val Lys	
138 143 148 153	
gcc aca ttc tac ggg ctc tac tct atg agt tgt gac ttt caa gga ctt	833
Ala Thr Phe Tyr Gly Leu Tyr Ser Met Ser Cys Asp Phe Gln Gly Leu	
154 159 164 169	
ggc cca aag aaa gta ctc agg gag ctc ctt cgt tgg acc tcc aca ctg	881
Gly Pro Lys Lys Val Leu Arg Glu Leu Leu Arg Trp Thr Ser Thr Leu	
170 175 180 185	
ctg caa ggc ctg ggc cat atg ttg ctg gga att tcc tcc acc ctt cgt	929
Leu Gln Gly Leu Gly His Met Leu Leu Gly Ile Ser Ser Thr Leu Arg	
186 191 196 201	
cat gca gtg gag ggg gct gag cag tgg cag cag aag ggc cgc ctc cat	977
His Ala Val Glu Gly Ala Glu Gln Trp Gln Gln Lys Gly Arg Leu His	
202 207 212 217	
tcc tac taa ggggctc tgagcttctg cccccagaat cattccaacc gacccactgc	1033
Ser Tyr *	
218	
aaagactatg acagcatcaa atttcaggac ctgcagacag tacaggctag ataaccacc	1093
caatttcccc actgtcctct gatccoctcg tgacagaacc tttcagcata acgcctcaca	1153
tcccaagtct atacccttac ctgaagaatg ctgttctttc ctagccacct ttctagcctc	1213
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gacagccctc tetgacttta ccttgagatc tgtcttcata cccttcccct caaactaaca	1393
aaaacatttc caataaaaat atcaaatatt taccacttaa gacttctgac tccaatttaa	1453
accaggaaag ggatggggtg gatacccat tttgcctcc cccatcaaca cccagtccca	1513
gatccaaagc ctcagtcttc aagtatggag ttcaatgcnc gcctccgctt ggccaccgca	1573
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ac	1635

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<400> 446

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gctcttttgc ggcccatagc ctcaaagaca aaagatatatt tggctaggcg agcttggttcc      180
tcccgtcagc acaggaagca ttcacgtctg gtcactctc tagcttcaga ctcaaaagtg      240
aacgattggc tggctgtgag ccgcaggacc ctgcggggag accaggggtgg tctctacact      300
gttgggtagc tagctggagg caaggcgctt gtataagaaa cagtccacgg accctgtcct      360
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cagaaacctc cctgagtagt acggtgtatt atatgagaac atccacttag catagcaacg      480
tctacggaca acccctgtag ctcttcttct ggattgtttt ctgtttcaaa ccatgttttc      540
ttatttcta cgagtttatg tgcttggaag cgagcgtggg cgtgaaaaac ccgtaccgcg      600
taaattcatc tgggtcccca aagactgagc cggctggcct cgttatttat gtgagcggct      660
atgtaaataa ggattcggag attgctctat tgattggaga gagctggagg aggcggtctc      720
tcttccagag cgctagttag gagcggagct tgctgtcat tggtcgccag agccaatgga      780
aaggggctgc cgcgcgccg taaagagttt gtagaggcag ttcgggtgcg gtacgttgca      840
ttccggtacc ggacgccgag agcggtttgt ctccgtctct ggagttgtag gcgagaggtg      900
atc  atg tcc ggt cgc ggg aaa cag ggc ggc aaa gtg cga gca aag gcc      948
      Met Ser Gly Arg Gly Lys Gln Gly Gly Lys Val Arg Ala Lys Ala
        1             5             10

aaa tcc cgc tcc tcc cgc gcg ggc ctg cag ttc ccg gtg ggc cga gtg      996
Lys Ser Arg Ser Ser Arg Ala Gly Leu Gln Phe Pro Val Gly Arg Val
  16             21             26             31

cac aga ctg ctg cgc aaa ggg aac tac gcg gag cga gtg ggc gcc ggg      1044
His Arg Leu Leu Arg Lys Gly Asn Tyr Ala Glu Arg Val Gly Ala Gly
  32             37             42             47

gcg ccg gtg tac ctg gcg gcg gtg ttg gag tac ctt acg gcg gag atc      1092
Ala Pro Val Tyr Leu Ala Ala Val Leu Glu Tyr Leu Thr Ala Glu Ile
  48             53             58             63

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ctg gag ctg gct ggc aac gcc gcg cgt gac aac aag aag acc agg ata	1140
Leu Glu Leu Ala Gly Asn Ala Ala Arg Asp Asn Lys Lys Thr Arg Ile	
64 69 74 79	
att ccc cgc cac ctg cag ctc gcc atc cgc aac gac gag gag tta aac	1188
Ile Pro Arg His Leu Gln Leu Ala Ile Arg Asn Asp Glu Glu Leu Asn	
80 85 90 95	
aag ctg ctg ggc aaa gtg acc atc gct cag ggc ggc gtc ctg ccc aac	1236
Lys Leu Leu Gly Lys Val Thr Ile Ala Gln Gly Gly Val Leu Pro Asn	
96 101 106 111	
atc cag gcc gtg ctg ctg ccc aag aag acg gag agt cag aag acg aag	1284
Ile Gln Ala Val Leu Leu Pro Lys Lys Thr Glu Ser Gln Lys Thr Lys	
112 117 122 127	
agc aaa tga ccctgac gccgccctca gggagctggc tccgccagca aaggcccttt	1340
Ser Lys *	
128	
tcattggtcgt cccgcaatgc ttttgaatgt gctggatgtc atggagggcc ggtgacatct	1400
agcggggagg tgggcggcga ggggtcccggc gggagccaat aaagttagtg aaaatcgta	1460
aaaaaaaaa a	1471

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tagccgtctg aggtgccgga gctgcgggag g atg gag ccg ctg aag gtg gaa	172
Met Glu Pro Leu Lys Val Glu	
1 5	
aag ttc gca acc gcc aac agg gga aac ggg ctg cgc gcc gtg acc ccg	220
Lys Phe Ala Thr Ala Asn Arg Gly Asn Gly Leu Arg Ala Val Thr Pro	
8 13 18 23	
ctg cgc ccc gga gag cta ctc ttc cgc tgc gat ccc ttg gcg tac acg	268
Leu Arg Pro Gly Glu Leu Leu Phe Arg Ser Asp Pro Leu Ala Tyr Thr	
24 29 34 39	
gtg tgc aag ggg agt cgt ggc gtc gtc tgc gac cgc tgc ctt ctc ggg	316
Val Cys Lys Gly Ser Arg Gly Val Val Cys Asp Arg Cys Leu Leu Gly	

40	45	50	55	
aag gaa aag ctg atg cga tgc tct cag tgc cgc gtc gcc aaa tac tgt				364
Lys Glu Lys Leu Met Arg Cys Ser Gln Cys Arg Val Ala Lys Tyr Cys				
56	61	66	71	
agt gct aag tgt cag aaa aaa gct tgg cca gac cac aag cgg gaa tgc				412
Ser Ala Lys Cys Gln Lys Lys Ala Trp Pro Asp His Lys Arg Glu Cys				
72	77	82	87	
aaa tgc ctt aaa agc tgc aaa ccc aga tat cct cca gac tcc gtt cga				460
Lys Cys Leu Lys Ser Cys Lys Pro Arg Tyr Pro Pro Asp Ser Val Arg				
88	93	98	103	
ctt ctt ggc aga gtt gtc ttc aaa ctt atg gat gga gca cct tca gaa				508
Leu Leu Gly Arg Val Val Phe Lys Leu Met Asp Gly Ala Pro Ser Glu				
104	109	114	119	
tca gag aag ctt tac tca ttt tat gat ctg gag tca aat att aac aaa				556
Ser Glu Lys Leu Tyr Ser Phe Tyr Asp Leu Glu Ser Asn Ile Asn Lys				
120	125	130	135	
ctg act gaa gat aag aaa gag ggc ctc agg caa ctc gta atg aca ttt				604
Leu Thr Glu Asp Lys Lys Glu Gly Leu Arg Gln Leu Val Met Thr Phe				
136	141	146	151	
caa cat ttc atg aga gaa gaa ata cag gat gcc tct cag ctg cca cct				652
Gln His Phe Met Arg Glu Glu Ile Gln Asp Ala Ser Gln Leu Pro Pro				
152	157	162	167	
gcc ttt gac ctt ttt gaa gcc ttt gca aaa gtg atc tgc aac tct ttc				700
Ala Phe Asp Leu Phe Glu Ala Phe Ala Lys Val Ile Cys Asn Ser Phe				
168	173	178	183	
acc atc tgt aat gcg gag atg cag gaa gtt ggt gtt ggc cta tat ccc				748
Thr Ile Cys Asn Ala Glu Met Gln Glu Val Gly Val Gly Leu Tyr Pro				
184	189	194	199	
agt atc tct ttg ctc aat cac agc tgt gac ccc aac tgt tcg att gtg				796
Ser Ile Ser Leu Leu Asn His Ser Cys Asp Pro Asn Cys Ser Ile Val				
200	205	210	215	
ttc aat ggg ccc cac ctc tta ctg cga gca gtc cga gac atc gag gtg				844
Phe Asn Gly Pro His Leu Leu Leu Arg Ala Val Arg Asp Ile Glu Val				
216	221	226	231	
gga gag gag ctc acc atc tgc tac ctg gat atg ctg atg acc agt gag				892
Gly Glu Glu Leu Thr Ile Cys Tyr Leu Asp Met Leu Met Thr Ser Glu				
232	237	242	247	
gag cgc cgg aag cag ctg agg gac cag tac tgc ttt gaa tgt gac tgt				940
Glu Arg Arg Lys Gln Leu Arg Asp Gln Tyr Cys Phe Glu Cys Asp Cys				
248	253	258	263	
ttc cgt tgc caa acc cag gac aag gat gct gat atg cta act ggt gat				988
Phe Arg Cys Gln Thr Gln Asp Lys Asp Ala Asp Met Leu Thr Gly Asp				
264	269	274	279	

gag caa gta tgg aag gaa gtt caa gaa tcc ctg aaa aaa att gaa gaa	1036
Glu Gln Val Trp Lys Glu Val Gln Glu Ser Leu Lys Lys Ile Glu Glu	
280 285 290 295	
ctg aag gca cac tgg aag tgg gag cag gtt ctg gcc atg tgc cag gcg	1084
Leu Lys Ala His Trp Lys Trp Glu Gln Val Leu Ala Met Cys Gln Ala	
296 301 306 311	
atc ata agc agc aat tct gaa cgg ctt ccc gat atc aac atc tac cag	1132
Ile Ile Ser Ser Asn Ser Glu Arg Leu Pro Asp Ile Asn Ile Tyr Gln	
312 317 322 327	
ctg aag gtg ctc gac tgc gcc atg gat gcc tgc atc aac ctc ggc ctg	1180
Leu Lys Val Leu Asp Cys Ala Met Asp Ala Cys Ile Asn Leu Gly Leu	
328 333 338 343	
ttg gag gaa gcc ttg ttc tat ggt act cgg acc atg gag cca tac agg	1228
Leu Glu Glu Ala Leu Phe Tyr Gly Thr Arg Thr Met Glu Pro Tyr Arg	
344 349 354 359	
att ttt ttc cca gga agc cat ccc gtc aga ggg gtt caa gtg atg aaa	1276
Ile Phe Phe Pro Gly Ser His Pro Val Arg Gly Val Gln Val Met Lys	
360 365 370 375	
gtt ggc aaa ctg cag cta cat caa ggc atg ttt ccc caa gca atg aag	1324
Val Gly Lys Leu Gln Leu His Gln Gly Met Phe Pro Gln Ala Met Lys	
376 381 386 391	
aat ctg aga ctg gct ttt gat att atg aga gtg aca cat ggc aga gaa	1372
Asn Leu Arg Leu Ala Phe Asp Ile Met Arg Val Thr His Gly Arg Glu	
392 397 402 407	
cac agc ctg att gaa gat ttg att cta ctt tta gaa gaa tgc gac gcc	1420
His Ser Leu Ile Glu Asp Leu Ile Leu Leu Leu Glu Glu Cys Asp Ala	
408 413 418 423	
aac atc aga gca tcc taa gggaac gcagtcagag ggaaatacgg cgtgtgtctt	1474
Asn Ile Arg Ala Ser *	
424 429	
tggttgatgc cttattgagg tcacacactc tatgctttgt tagctgtgtg aacctctcct	1534
attggaaatt ctgttccgtg tttgtgtagg taaataaagg cagacatggt ttgcaaacca	1594
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1 5

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Ser Ser Ala Ala Ala Ala Ala Ala Ala Asp Ser Arg Met Asn Asn Pro
12 17 22 27

tca gaa acc agt aaa cca tct atg gag agt gga gat ggc aac aca ggc 148
Ser Glu Thr Ser Lys Pro Ser Met Glu Ser Gly Asp Gly Asn Thr Gly
28 33 38 43

aca caa acc aat ggt ctg gac ttt cag aag cag cct gtg cct gta gga 196
Thr Gln Thr Asn Gly Leu Asp Phe Gln Lys Gln Pro Val Pro Val Gly
44 49 54 59

gga gca atc tca aca gcc cag gcg cag gct ttc ctt gga cat ctc cat 244
Gly Ala Ile Ser Thr Ala Gln Ala Gln Ala Phe Leu Gly His Leu His
60 65 70 75

cag gtc caa ctc gct gga aca agt tta cag gct gct gct cag tct tta 292
Gln Val Gln Leu Ala Gly Thr Ser Leu Gln Ala Ala Ala Gln Ser Leu
76 81 86 91

aat gta cag tct aaa tct aat gaa gaa tcg ggg gat tcg cag cag cca 340
Asn Val Gln Ser Lys Ser Asn Glu Glu Ser Gly Asp Ser Gln Gln Pro
92 97 102 107

agc cag cct tcc cag cag cct tca gtg cag gca gcc att ccc cag acc 388
Ser Gln Pro Ser Gln Gln Pro Ser Val Gln Ala Ala Ile Pro Gln Thr
108 113 118 123

cag ctt atg cta gct gga gga cag ata act ggg ctt act ttg acg cct 436
Gln Leu Met Leu Ala Gly Gly Gln Ile Thr Gly Leu Thr Leu Thr Pro
124 129 134 139

gcc cag caa cag tta cta ctc cag cag gca cag gca cag gca cag ctg 484
Ala Gln Gln Gln Leu Leu Leu Gln Gln Ala Gln Ala Gln Ala Gln Leu
140 145 150 155

ctg gct gct gca gtg cag cag cac tcc gcc agc cag cag cac agt gct 532
Leu Ala Ala Ala Val Gln Gln His Ser Ala Ser Gln Gln His Ser Ala
156 161 166 171

gct gga gcc acc atc tcc gcc tct gct gcc acg ccc atg acg cag atc 580
Ala Gly Ala Thr Ile Ser Ala Ser Ala Ala Thr Pro Met Thr Gln Ile
172 177 182 187

ccc ctg tct cag ccc ata cag atc gca cag gat ctt caa caa ctg caa 628
Pro Leu Ser Gln Pro Ile Gln Ile Ala Gln Asp Leu Gln Gln Leu Gln
188 193 198 203

Thr Ser Glu Glu Ile	Thr Met Ile Ala Asp	Gln Leu Asn Met Glu Lys	
428	433	438	443
gag gtg att cgt gtt	tgg ttc tgt aac cgc	cgc cag aaa gaa aaa aga	1396
Glu Val Ile Arg Val	Trp Phe Cys Asn Arg	Arg Gln Lys Glu Lys Arg	
444	449	454	459
atc aac cca cca agc	agt ggt ggg acc agc	agc tca cct att aaa gca	1444
Ile Asn Pro Pro Ser	Ser Gly Gly Thr Ser	Ser Ser Pro Ile Lys Ala	
460	465	470	475
att ttc ccc agc cca	act tca ctg gtg gcg	acc aca cca agc ctt gtg	1492
Ile Phe Pro Ser Pro	Thr Ser Leu Val Ala	Thr Thr Pro Ser Leu Val	
476	481	486	491
act agc agt gca gca	act acc ctc aca gtc	agc cct gtc ctc cct ctg	1540
Thr Ser Ser Ala Ala	Thr Thr Leu Thr Val	Ser Pro Val Leu Pro Leu	
492	497	502	507
acc agt gct gct gtg	acg aat ctt tca gtt	aca ggc act tca gac acc	1588
Thr Ser Ala Ala Val	Thr Asn Leu Ser Val	Thr Gly Thr Ser Asp Thr	
508	513	518	523
acc tcc aac aac aca	gca acc gtg att tcc	aca gcg cct cca gct tcc	1636
Thr Ser Asn Asn Thr	Ala Thr Val Ile Ser	Thr Ala Pro Pro Ala Ser	
524	529	534	539
tca gca gtc acg tcc	ccc tct ctg agt ccc	tcc cct tct gcc tca gcc	1684
Ser Ala Val Thr Ser	Pro Ser Leu Ser Pro	Ser Pro Ser Ala Ser Ala	
540	545	550	555
tcc acc tcc gag gca	tcc agt gcc agt gag	acc agc aca aca cag acc	1732
Ser Thr Ser Glu Ala	Ser Ser Ala Ser Glu	Thr Ser Thr Thr Gln Thr	
556	561	566	571
acc tcc act cct ttg	tcc tcc cct ctt ggg	acc agc cag gtg atg gtg	1780
Thr Ser Thr Pro Leu	Ser Ser Pro Leu Gly	Thr Ser Gln Val Met Val	
572	577	582	587
aca gca tca ggt ttg	caa aca gca gca gct	gct gcc ctt caa gga gct	1828
Thr Ala Ser Gly Leu	Gln Thr Ala Ala Ala	Ala Ala Leu Gln Gly Ala	
588	593	598	603
gca cag ttg cca gca	aat gcc agt ctt gct	gcc atg gca gct gct gca	1876
Ala Gln Leu Pro Ala	Asn Ala Ser Leu Ala	Ala Met Ala Ala Ala Ala	
604	609	614	619
gga cta aac cca agc	ctg atg gca ccc tca	cag ttt gcg gct gga ggt	1924
Gly Leu Asn Pro Ser	Leu Met Ala Pro Ser	Gln Phe Ala Ala Gly Gly	
620	625	630	635
gcc tta ctc agt ctg	aat cca ggg acc ctg	agc ggt gct ctc agc cca	1972
Ala Leu Leu Ser Leu	Asn Pro Gly Thr Leu	Ser Gly Ala Leu Ser Pro	
636	641	646	651
gct cta atg agc aac	agt aca ctg gca act	att caa gct ctt gct tct	2020
Ala Leu Met Ser Asn	Ser Thr Leu Ala Thr	Ile Gln Ala Leu Ala Ser	

652	657	662	667	
ggg ggc tct ctt cca	ata aca tca ctt gat	gca act ggg aac ctg gta		2068
Gly Gly Ser Leu Pro	Ile Thr Ser Leu Asp	Ala Thr Gly Asn Leu Val		
668	673	678	683	
ttt gcc aat gcg gga	gga gcc ccc aac atc	gtg act gcc cct ctg ttc		2116
Phe Ala Asn Ala Gly	Gly Ala Pro Asn Ile	Val Thr Ala Pro Leu Phe		
684	689	694	699	
ctg aac cct cag aac	ctc tct ctg ctc acc	agc aac cct gtt agc ttg		2164
Leu Asn Pro Gln Asn	Leu Ser Leu Leu Thr	Ser Asn Pro Val Ser Leu		
700	705	710	715	
gtc tct gcc gcc gca	gca tct gca ggg aac	tct gca cct gta gcc agc		2212
Val Ser Ala Ala Ala	Ala Ser Ala Gly Asn	Ser Ala Pro Val Ala Ser		
716	721	726	731	
ctt cac gcc acc tcc	acc tct gct gag tcc	atc cag aac tct ctc ttc		2260
Leu His Ala Thr Ser	Thr Ser Ala Glu Ser	Ile Gln Asn Ser Leu Phe		
732	737	742	747	
aca gtg gcc tct gcc	agc ggg gct gcg tcc	acc acc acc acc gcc tcc		2308
Thr Val Ala Ser Ala	Ser Gly Ala Ala Ser	Thr Thr Thr Thr Ala Ser		
748	753	758	763	
aag gca cag tga gct	gggcagagct gggctgccag	aagccttttt cactctgcag		2363
Lys Ala Gln *				
764				
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tatttctca tgattagggtt atgcttttttg gccagaatat ctcaggaggg atgctgtgtc	180
cctctcgggg ttttaacttt tctttctca cacctagatc aagtactttg tgggtgcagaa	240
cccgctctct tggcgggtct ccttgcagct cctgcctctc tcctgtacc ctaaaccga	300

agccctagtg cacctgctcc acagatgggt tggcactgat	atg cag atg att aat	355
	Met Gln Met Ile Asn	
	1	
ttc aca act ggt gaa ttc cag ctc acc gaa gct tgc cct tac ctg ggt		403
Phe Thr Thr Gly Glu Phe Gln Leu Thr Glu Ala Cys Pro Tyr Leu Gly		
6 11 16 21		
acg cat tct gag gaa tcc agg ttt ggc atc ctc cac tta cat ctg cag		451
Thr His Ser Glu Glu Ser Arg Phe Gly Ile Leu His Leu His Leu Gln		
22 27 32 37		
cct ttg gaa atg aaa agg gtt ggc gta gtt ttc aca cct gct gac tat		499
Pro Leu Glu Met Lys Arg Val Gly Val Val Phe Thr Pro Ala Asp Tyr		
38 43 48 53		
gga aaa gtt acc tca ctc ata cta atc cgg aat aac ttg act gtt att		547
Gly Lys Val Thr Ser Leu Ile Leu Ile Arg Asn Asn Leu Thr Val Ile		
54 59 64 69		
gac atg att ggc gtg gaa gga ttt gga gca aga gag tta tta aaa gtg		595
Asp Met Ile Gly Val Glu Gly Phe Gly Ala Arg Glu Leu Leu Lys Val		
70 75 80 85		
ggg gga aga ctt cct ggt gca gga ggc tca ctc cga ttt aag gtg ccc		643
Gly Gly Arg Leu Pro Gly Ala Gly Gly Ser Leu Arg Phe Lys Val Pro		
86 91 96 101		
gag tcc acg ctg atg gac tgc cgt aga caa ctg aaa gac agt aag caa		691
Glu Ser Thr Leu Met Asp Cys Arg Arg Gln Leu Lys Asp Ser Lys Gln		
102 107 112 117		
att tta tct att aca aag aac ttt aaa gtt gag aat att gga cct ctt		739
Ile Leu Ser Ile Thr Lys Asn Phe Lys Val Glu Asn Ile Gly Pro Leu		
118 123 128 133		
cct ata act gtt tgc tct ctg aaa att aat ggg tat aac tgc caa ggt		787
Pro Ile Thr Val Ser Ser Leu Lys Ile Asn Gly Tyr Asn Cys Gln Gly		
134 139 144 149		
tat gga ttc gag gtg ctg gat tgt cat cag ttt tcc ctg gac cca aac		835
Tyr Gly Phe Glu Val Leu Asp Cys His Gln Phe Ser Leu Asp Pro Asn		
150 155 160 165		
aca tcc cgc gat atc agc att gtg ttc act cca gac ttt acc tcc tcc		883
Thr Ser Arg Asp Ile Ser Ile Val Phe Thr Pro Asp Phe Thr Ser Ser		
166 171 176 181		
tgg gta att cgg gac cta agt ctt gta acc gca gcg gac cta gaa ttt		931
Trp Val Ile Arg Asp Leu Ser Leu Val Thr Ala Ala Asp Leu Glu Phe		
182 187 192 197		
cgc ttc act ctc aat gtg act ctc cct cat cac ctg ttg ccc ttg tgt		979
Arg Phe Thr Leu Asn Val Thr Leu Pro His His Leu Leu Pro Leu Cys		
198 203 208 213		
gca gac gtg gtt cca gga ccc agc tgg gag gag tca ttt tgg agg ctc		1027

Ala Asp Val Val Pro Gly Pro Ser Trp Glu Glu Ser Phe Trp Arg Leu	
214 219 224 229	
acg gtc ttc ttt gtc agt ttg tcc ctg ttg ggt gtg att tta ata gcc	1075
Thr Val Phe Phe Val Ser Leu Ser Leu Leu Gly Val Ile Leu Ile Ala	
230 235 240 245	
ttc caa caa gca cag tac att ctc atg gaa ttc atg aaa aca aga cag	1123
Phe Gln Gln Ala Gln Tyr Ile Leu Met Glu Phe Met Lys Thr Arg Gln	
246 251 256 261	
agg caa aat gct agc tcc tct tca cag caa aac aat ggt cct atg gat	1171
Arg Gln Asn Ala Ser Ser Ser Ser Gln Gln Asn Asn Gly Pro Met Asp	
262 267 272 277	
gta atc agc ccc cat tct tac aaa agc aat tgc aag aac ttt ctc gat	1219
Val Ile Ser Pro His Ser Tyr Lys Ser Asn Cys Lys Asn Phe Leu Asp	
278 283 288 293	
aca tat ggc ccc tct gat aaa ggc agg ggg aag aac tgc ctt cca gtg	1267
Thr Tyr Gly Pro Ser Asp Lys Gly Arg Gly Lys Asn Cys Leu Pro Val	
294 299 304 309	
aac act ccc caa agc agg atc cag aat gct gca aag agg agc cca gcc	1315
Asn Thr Pro Gln Ser Arg Ile Gln Asn Ala Ala Lys Arg Ser Pro Ala	
310 315 320 325	
acc tat ggt cat tct cag aag aag cac aaa tgc tca gtg tat tac agt	1363
Thr Tyr Gly His Ser Gln Lys Lys His Lys Cys Ser Val Tyr Tyr Ser	
326 331 336 341	
aaa cac aaa acc agc aca gct gcg gcc agc agc acc agc acg act act	1411
Lys His Lys Thr Ser Thr Ala Ala Ala Ser Ser Thr Ser Thr Thr Thr	
342 347 352 357	
gag gaa aaa cag act tca ccc ctg ggc agc tca ctg cct gct gct aaa	1459
Glu Glu Lys Gln Thr Ser Pro Leu Gly Ser Ser Leu Pro Ala Ala Lys	
358 363 368 373	
gag gac att tgc act gat gcc atg cgt gag aac tgg atc agc ctc aga	1507
Glu Asp Ile Cys Thr Asp Ala Met Arg Glu Asn Trp Ile Ser Leu Arg	
374 379 384 389	
tat gca agt ggc ata aat gtc aac ctg cag aag aat tta acc ctt ccc	1555
Tyr Ala Ser Gly Ile Asn Val Asn Leu Gln Lys Asn Leu Thr Leu Pro	
390 395 400 405	
aaa aac tta ctg aat aaa gaa gaa aac aca ctg aaa aac aca att gtt	1603
Lys Asn Leu Leu Asn Lys Glu Glu Asn Thr Leu Lys Asn Thr Ile Val	
406 411 416 421	
ttc agt aat cct tct tca gaa tgt agt atg aag gag gga ata cag aca	1651
Phe Ser Asn Pro Ser Ser Glu Cys Ser Met Lys Glu Gly Ile Gln Thr	
422 427 432 437	
tgt atg ttt cct aag gaa act gac att aaa act tca gag aac aca gcc	1699
Cys Met Phe Pro Lys Glu Thr Asp Ile Lys Thr Ser Glu Asn Thr Ala	

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atg gtg gac gcc cag cac ttc ctg ccg gcc gga gac agt gtt tca caa Met Val Asp Ala Gln His Phe Leu Pro Ala Gly Asp Ser Val Ser Gln 694 699 704 709	2467
aat gat ttt cct tct gaa gct ccc atc tcc ttg aat ctt tct cat aac Asn Asp Phe Pro Ser Glu Ala Pro Ile Ser Leu Asn Leu Ser His Asn 710 715 720 725	2515
atc tgc aat ccc atg acc gtg aat agt ctc cca caa ⁱ tac gca gag cct Ile Cys Asn Pro Met Thr Val Asn Ser Leu Pro Gln Tyr Ala Glu Pro 726 731 736 741	2563
tcc tgt ccc agc ctt cct gcc ggg ccc aca ggt gtt gaa gaa gat aaa Ser Cys Pro Ser Leu Pro Ala Gly Pro Thr Gly Val Glu Glu Asp Lys 742 747 752 757	2611
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aca agc agc tta aac tgc acc ctg gag aac ggc gtg cct tgt gtg att Thr Ser Ser Leu Asn Cys Thr Leu Glu Asn Gly Val Pro Cys Val Ile 774 779 784 789	2707
cag gag tgc gcc ccg gtt cat aat agt ttc att gat tgg agt gca aca Gln Glu Ser Ala Pro Val His Asn Ser Phe Ile Asp Trp Ser Ala Thr 790 795 800 805	2755
tgc gaa ggc cag ttt tcc agc gca tac tgt cca ttg gaa ttg aac gat Cys Glu Gly Gln Phe Ser Ser Ala Tyr Cys Pro Leu Glu Leu Asn Asp 806 811 816 821	2803
tac aat gcc ttt cca gaa gaa aac atg aac tat gcc aat ggc ttc ccc Tyr Asn Ala Phe Pro Glu Glu Asn Met Asn Tyr Ala Asn Gly Phe Pro 822 827 832 837	2851
tgt cct gca gat gtt cag aca gac ttt att gat cac aac tct cag tct Cys Pro Ala Asp Val Gln Thr Asp Phe Ile Asp His Asn Ser Gln Ser 838 843 848 853	2899
acc tgg aac acc cca ccc aac atg cct gct gcc tgg gga cat gcc agt Thr Trp Asn Thr Pro Pro Asn Met Pro Ala Ala Trp Gly His Ala Ser 854 859 864 869	2947
ttc atc agc tct ccg ccc tac ctc aca agc acc cga agc ttg tct cca Phe Ile Ser Ser Pro Pro Tyr Leu Thr Ser Thr Arg Ser Leu Ser Pro 870 875 880 885	2995
atg tct gga ctt ttt ggt tcc atc tgg gcc ccg caa agc gat gtg tat Met Ser Gly Leu Phe Gly Ser Ile Trp Ala Pro Gln Ser Asp Val Tyr 886 891 896 901	3043

gaa aat tgc tgc ccc atc aac ccc acc acg gaa cat tcg acc cac atg 3091
 Glu Asn Cys Cys Pro Ile Asn Pro Thr Thr Glu His Ser Thr His Met
 902 907 912 917

gaa aac caa gcg gtc gtg tgc aag gaa tac tac ccg ggg ttc aac ccg 3139
 Glu Asn Gln Ala Val Val Cys Lys Glu Tyr Tyr Pro Gly Phe Asn Pro
 918 923 928 933

ttt cgc gcc tat atg aac ctg gac ata tgg act acc aca gcg aat agg 3187
 Phe Arg Ala Tyr Met Asn Leu Asp Ile Trp Thr Thr Thr Ala Asn Arg
 934 939 944 949

aat gca aat ttc cca ctg tct aga gac tcg agt tac tgt ggg aat gtg 3235
 Asn Ala Asn Phe Pro Leu Ser Arg Asp Ser Ser Tyr Cys Gly Asn Val
 950 955 960 965

tga aaat aattggattt ttaaacaatg tgaataaaga ggcttggtgtt ttgattacta 3292
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 Met Gly Arg Val Gln Leu Phe Glu Ile Ser Leu
 1 5

agc cac ggc cgc gtc gtc tac agc ccc ggg gag ccg ttg gct ggg acc 157
 Ser His Gly Arg Val Val Tyr Ser Pro Gly Glu Pro Leu Ala Gly Thr
 12 17 22 27

gtg cgc gtg cgc ctg ggg gca ccg ctg ccg ttc cga gcc atc cgg gtg 205
 Val Arg Val Arg Leu Gly Ala Pro Leu Pro Phe Arg Ala Ile Arg Val
 28 33 38 43

acc tgc ata ggt tcc tgc ggg gtc tcc aac aag gct aat gac aca gcg 253
 Thr Cys Ile Gly Ser Cys Gly Val Ser Asn Lys Ala Asn Asp Thr Ala
 44 49 54 59

tgg gta gtg gag gag ggt tac ttc aac agt tcc ctg tcg ctg gca gac 301
 Trp Val Val Glu Glu Gly Tyr Phe Asn Ser Ser Leu Ser Leu Ala Asp

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Lys Gly Ser Leu Pro Ala Gly Glu His Ser Phe Pro Phe Gln Phe Leu				
76	81	86	91	
ctt cct gcc act gca ccc acg tcc ttt gag ggt cct ttc ggg aag atc				397
Leu Pro Ala Thr Ala Pro Thr Ser Phe Glu Gly Pro Phe Gly Lys Ile				
92	97	102	107	
gtg cac cag gtg agg gcc gcc atc cac acg cca cgg ttt tcc aag gat				445
Val His Gln Val Arg Ala Ala Ile His Thr Pro Arg Phe Ser Lys Asp				
108	113	118	123	
cac aag tgc agc ctc gtg ttc tat atc ttg agc ccc ttg aac ctg aac				493
His Lys Cys Ser Leu Val Phe Tyr Ile Leu Ser Pro Leu Asn Leu Asn				
124	129	134	139	
agc atc cca gac att gag caa ccc aac gtg gcc tct gcc acc aag aag				541
Ser Ile Pro Asp Ile Glu Gln Pro Asn Val Ala Ser Ala Thr Lys Lys				
140	145	150	155	
ttc tcc tac aag ctg gtg aag acg ggc agc gtg gtc ctc aca gcc agc				589
Phe Ser Tyr Lys Leu Val Lys Thr Gly Ser Val Val Leu Thr Ala Ser				
156	161	166	171	
act gat ctc cgc ggc tat gtg gtg ggg cag gca ctg cag ctg cat gcc				637
Thr Asp Leu Arg Gly Tyr Val Val Gly Gln Ala Leu Gln Leu His Ala				
172	177	182	187	
gac gtt gag aac cag tca ggc aag gac acc agc cct gtg gtg gcc agt				685
Asp Val Glu Asn Gln Ser Gly Lys Asp Thr Ser Pro Val Val Ala Ser				
188	193	198	203	
ctg ctg cag aaa gtg tcc tat aag gcc aag cgc tgg atc cac gac gta				733
Leu Leu Gln Lys Val Ser Tyr Lys Ala Lys Arg Trp Ile His Asp Val				
204	209	214	219	
cgg acc att gcg gag gtg gag ggt gcg ggc gtc aag gcc tgg cgg cgg				781
Arg Thr Ile Ala Glu Val Glu Gly Ala Gly Val Lys Ala Trp Arg Arg				
220	225	230	235	
gcg cag tgg cac gag cag atc ctg gtg cct gcc ttg ccc cag tcc gcc				829
Ala Gln Trp His Glu Gln Ile Leu Val Pro Ala Leu Pro Gln Ser Ala				
236	241	246	251	
ctg ccg ggc tgc agc ctc atc cac atc gac tac tac tta cag gtc tct				877
Leu Pro Gly Cys Ser Leu Ile His Ile Asp Tyr Tyr Leu Gln Val Ser				
252	257	262	267	
ctg aag gcg ccg gaa gct act gtg acc ctc ccg gtc ttc att ggc aat				925
Leu Lys Ala Pro Glu Ala Thr Val Thr Leu Pro Val Phe Ile Gly Asn				
268	273	278	283	
att gct gtg aac cat gcc cca gtg agc ccc cgg cca ggc ctg ggg ctg				973
Ile Ala Val Asn His Ala Pro Val Ser Pro Arg Pro Gly Leu Gly Leu				
284	289	294	299	

cct cct ggg gcc cca ccc ctg gtg gtg cct tcc gca cca ccc cag gag	1021
Pro Pro Gly Ala Pro Pro Leu Val Val Pro Ser Ala Pro Pro Gln Glu	
300 305 310 315	
gag gct gag gct gag gct gcg gct ggc ggc ccc cac ttc ttg gac ccc	1069
Glu Ala Glu Ala Glu Ala Ala Gly Gly Pro His Phe Leu Asp Pro	
316 321 326 331	
gtc ttc ctc tcc acc aag agc cat tcg cag cgg cag ccc ctg ctg gcc	1117
Val Phe Leu Ser Thr Lys Ser His Ser Gln Arg Gln Pro Leu Leu Ala	
332 337 342 347	
acc ttg agt tct gtg cct ggt gcg ccg gag ccc tgc ^h cct cag gat ggc	1165
Thr Leu Ser Ser Val Pro Gly Ala Pro Glu Pro Cys Pro Gln Asp Gly	
348 353 358 363	
agc cct gcc tca cac ccg ctg cac cct ccc ttg tgc att tca aca ggt	1213
Ser Pro Ala Ser His Pro Leu His Pro Pro Leu Cys Ile Ser Thr Gly	
364 369 374 379	
gcc act gtc ccc tac ttt gca gag ggc tcc ggg ggg cca gtg ccc act	1261
Ala Thr Val Pro Tyr Phe Ala Glu Gly Ser Gly Gly Pro Val Pro Thr	
380 385 390 395	
acc agc acc ttg att ctt cct cca gag tac agt tct tgg ggc tac ccc	1309
Thr Ser Thr Leu Ile Leu Pro Pro Glu Tyr Ser Ser Trp Gly Tyr Pro	
396 401 406 411	
tat gag gcc cca ccg tct tat gag cag agc tgc ggc ggc gtg gaa ccc	1357
Tyr Glu Ala Pro Pro Ser Tyr Glu Gln Ser Cys Gly Gly Val Glu Pro	
412 417 422 427	
agc ctg acc cct gag agc tga cc ccgtgctgcc ttctccaggc aggccctggcc	1410
Ser Leu Thr Pro Glu Ser *	
428 433	
tctgccctgg gactggggcg cccagggcct cgtgccttct ctcttggcct agcctggccc	1470
actcaggacc tgcccagcct ctgccagctc ctctggcacc cgcctcttcc tccctggggc	1530
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tatttgtaaa aaaaaaaaaa	1609

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 <213> Homo sapiens

<220>
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 <222> (105) .. (1481)

<400> 451

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Met Arg Lys Lys	
1	
tgg aaa atg gga ggc atg aaa tac ata ttt tgc ttg ttg ttc ttt ctt	164
Trp Lys Met Gly Gly Met Lys Tyr Ile Phe Ser Leu Leu Phe Phe Leu	
5 10 15 20	
ttg cta gaa gga ggc aaa aca gag caa gta aaa cat tca gag aca tat	212
Leu Leu Glu Gly Gly Lys Thr Glu Gln Val Lys His Ser Glu Thr Tyr	
21 26 31 36	
tgc atg ttt caa gac aag aag tac aga gtg ggt gag aga tgg cat cct	260
Cys Met Phe Gln Asp Lys Lys Tyr Arg Val Gly Glu Arg Trp His Pro	
37 42 47 52	
tac ctg gaa cct tat ggg ttg gtt tac tgc gtg aac tgc atc tgc tca	308
Tyr Leu Glu Pro Tyr Gly Leu Val Tyr Cys Val Asn Cys Ile Cys Ser	
53 58 63 68	
cag aat ggg aat gtg ctt tgc agc cga gtc aga tgt cca aat gtt cat	356
Gln Asn Gly Asn Val Leu Cys Ser Arg Val Arg Cys Pro Asn Val His	
69 74 79 84	
tgc ctt tct cct gtg cat att cct cat ctg tgc tgc cct cgc tgc cca	404
Cys Leu Ser Pro Val His Ile Pro His Leu Cys Cys Pro Arg Cys Pro	
85 90 95 100	
gaa gac tcc tta ccc cca gtg aac aat aag gtg acc agc aag tct tgc	452
Glu Asp Ser Leu Pro Pro Val Asn Asn Lys Val Thr Ser Lys Ser Cys	
101 106 111 116	
gag tac aat ggg aca act tac caa cat gga gag ctg ttc gta gct gaa	500
Glu Tyr Asn Gly Thr Thr Tyr Gln His Gly Glu Leu Phe Val Ala Glu	
117 122 127 132	
ggg ctc ttt cag aat cgg caa ccc aat caa tgc acc cag tgc agc tgt	548
Gly Leu Phe Gln Asn Arg Gln Pro Asn Gln Cys Thr Gln Cys Ser Cys	
133 138 143 148	
tcg gag gga aac gtg tat tgt ggt ctc aag act tgc ccc aaa tta acc	596
Ser Glu Gly Asn Val Tyr Cys Gly Leu Lys Thr Cys Pro Lys Leu Thr	
149 154 159 164	
tgt gcc ttc cca gtc tct gtt cca gat tcc tgc tgc cgg gta tgc aga	644
Cys Ala Phe Pro Val Ser Val Pro Asp Ser Cys Cys Arg Val Cys Arg	
165 170 175 180	
gga gat gga gaa ctg tca tgg gaa cat tct gat ggt gat atc ttc cgg	692
Gly Asp Gly Glu Leu Ser Trp Glu His Ser Asp Gly Asp Ile Phe Arg	
181 186 191 196	
caa cct gcc aac aga gaa gca aga cat tct tac cac cgc tct cac tat	740
Gln Pro Ala Asn Arg Glu Ala Arg His Ser Tyr His Arg Ser His Tyr	

197	202	207	212	
gat cct cca cca agc cga cag gct gga ggt ctg tcc cgc ttt cct ggg				788
Asp Pro Pro Pro Ser Arg Gln Ala Gly Gly Leu Ser Arg Phe Pro Gly				
213	218	223	228	
gcc aga agt cac cgg gga gct ctt atg gat tcc cag caa gca tca gga				836
Ala Arg Ser His Arg Gly Ala Leu Met Asp Ser Gln Gln Ala Ser Gly				
229	234	239	244	
acc att gtg caa att gtc atc aat aac aaa cac aag cat gga caa gtg				884
Thr Ile Val Gln Ile Val Ile Asn Asn Lys His Lys His Gly Gln Val				
245	250	255	260	
tgt gtt tcc aat gga aag acc tat tct cat ggc gag tcc tgg cac cca				932
Cys Val Ser Asn Gly Lys Thr Tyr Ser His Gly Glu Ser Trp His Pro				
261	266	271	276	
aac ctc cgg gca ttt ggc att gtg gag tgt gtg cta tgt act tgt aat				980
Asn Leu Arg Ala Phe Gly Ile Val Glu Cys Val Leu Cys Thr Cys Asn				
277	282	287	292	
gtc acc aag caa gag tgt aag aaa atc cac tgc ccc aat cga tac ccc				1028
Val Thr Lys Gln Glu Cys Lys Lys Ile His Cys Pro Asn Arg Tyr Pro				
293	298	303	308	
tgc aag tat cct caa aaa ata gac gga aaa tgc tgc aag gtg tgt cca				1076
Cys Lys Tyr Pro Gln Lys Ile Asp Gly Lys Cys Cys Lys Val Cys Pro				
309	314	319	324	
ggc aaa aaa aca aaa gaa gaa ctt cca ggc caa agc ttt gac aat aaa				1124
Gly Lys Lys Thr Lys Glu Glu Leu Pro Gly Gln Ser Phe Asp Asn Lys				
325	330	335	340	
ggc tac ttc tgc ggc gaa gaa acg atg cct gtg tat gag tct gta ttc				1172
Gly Tyr Phe Cys Gly Glu Glu Thr Met Pro Val Tyr Glu Ser Val Phe				
341	346	351	356	
atg gag gat ggc gag aca acc aga aaa ata gca ctg gag act gag aga				1220
Met Glu Asp Gly Glu Thr Thr Arg Lys Ile Ala Leu Glu Thr Glu Arg				
357	362	367	372	
cca cct cag gta gag gtc cac gtt tgg act att cga aag ggc att ctc				1268
Pro Pro Gln Val Glu Val His Val Trp Thr Ile Arg Lys Gly Ile Leu				
373	378	383	388	
cag cac ttc cat att gag aag atc tcc aag agg atg ttt gag gag ctt				1316
Gln His Phe His Ile Glu Lys Ile Ser Lys Arg Met Phe Glu Glu Leu				
389	394	399	404	
cct cac ttc aag ctg gtg acc aga aca acc ctg agc cag tgg aag atc				1364
Pro His Phe Lys Leu Val Thr Arg Thr Thr Leu Ser Gln Trp Lys Ile				
405	410	415	420	
ttc acc gaa gga gaa gct cag atc agc cag atg tgt tca agt cgt gta				1412
Phe Thr Glu Gly Glu Ala Gln Ile Ser Gln Met Cys Ser Ser Arg Val				
421	426	431	436	

tgc aga aca gag ctt gaa gat tta gtc aag gtt ttg tac ctg gag aga	1460
Cys Arg Thr Glu Leu Glu Asp Leu Val Lys Val Leu Tyr Leu Glu Arg	
437 442 447 452	
tct gaa aag ggc cac tgt tag gc aagacagaca gtattggata gggtaaagca	1513
Ser Glu Lys Gly His Cys *	
453 458	
agaaaactca agctgcagct ggactgcagg cttatttttgc ttaagtcaac agtgccttaa	1573
aactccaaac tcaaatgcag tcaattatc acgccatgca cagcataatt tgctcctttg	1633
tgtggagtgg tgtgtcagcc cttgaacatc tcctccaaag agactagaag agtctttaat	1693
tatatgtggg aggaggagg atagaacatc acaacactgc tctagtttct tggagaatca	1753
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tatgaaatta tacctttgaa ttttagaatg tcatgtgttc ttttaaaaaa attagctccc	1933
catectccct cctcactccc tcctccctc cttctctctc tctctctctc tcctccctc	1993
tctcacagac acacacacac acacacacac acacacacac acgcacgtcc aactcacat	2053
taaacgaaag ctttatttga agcaaagcta gccaaagattc tacgttactt ttcccttgac	2113
tggateccaa gtagcttgga agtttttgtg cccaggagag taaataactg tgaacaagag	2173
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tactactaa tatttttgag accatagttg tctggtcaga aaaattatat taaattagta	2533
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aaccccatat gtctcattcc atgactatag gtgagagaat tctttcctaa gaggggttga	3013
taccaatagg ggaaaatgta aaatgttcag tctttatgac aacctggcat aaaggagtca	3073
attcttatga aagagacaca agggccttat ggccaggggt tcttgggaca agactctcac	3133
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caaagcatta gtttgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt	3253
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gttgtgtaga gaataggaca tagggtaaag aggccaaagct gcctgtagtt agtagagaag	3613
aatggatgtg gttcttcttg tgtatttatt tgtatcataa acacttggaa caacaaagac	3673
cataagcatc atttagcagt ttagaccatt ttctagttaa ctcatgtaaa caagtaagag	3733
taacataaca gtattaccct ttactgttc tcacaggaca tgtacctaata tatggtactt	3793
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tca	3856

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 <213> Homo sapiens

<220>
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 <222> (404)..(1189)

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gcagcggttt cactctgatt tgcttctcca gtgaagatgg ttggtagctc ctgaggccgg	120
gggtcaggaa catggaggcg gtgctgggga cggtttgttt tctaaccaca ctcttttgt	180
aaccacaaag gaaaaaggca gaacgttcct ccgctggcgc cagccaatca gcaggactcc	240
tgccttcctt cggggcaagg tcgcagcatc tgcctcgaa atcacgaaat cacggggctt	300
ctttctgctg gctcagccgg gaggcccaga gtgttctgca gaggctgcgt attgaaggct	360

gctctctgaa gctccctgcc ccaggtcacg ccgccggttc cag	atg aat cca gag	415
	Met Asn Pro Glu	
	1	
tgg ggg cag gcc ttc gtg cac gtg gcc gtg gcc ggt ggc ctc tgt gcc		463
Trp Gly Gln Ala Phe Val His Val Ala Val Ala Gly Gly Leu Cys Ala		
5 10 15 20		
gtg gct gtg ttc acg ggc att ttc gac agt gtt tcc gtg caa gtg ggc		511
Val Ala Val Phe Thr Gly Ile Phe Asp Ser Val Ser Val Gln Val Gly		
21 26 31 36		
tat gag cac tac gcc gag gcg ccc gtg gcc ggc ctc cct gcc ttc ctg		559
Tyr Glu His Tyr Ala Glu Ala Pro Val Ala Gly Leu Pro Ala Phe Leu		
37 42 47 52		
gcc atg ccg ttc aac tca ctc gtg aac atg gcc tac acg ctg ctg ggg		607
Ala Met Pro Phe Asn Ser Leu Val Asn Met Ala Tyr Thr Leu Leu Gly		
53 58 63 68		
ctg tcg tgg ctg cac agg ggc ggc gcg atg ggg ctg ggt ccc cgc tac		655
Leu Ser Trp Leu His Arg Gly Gly Ala Met Gly Leu Gly Pro Arg Tyr		
69 74 79 84		
ctg aag gac gtg ttc gca gcc atg gcc ctg ctc tat ggc ccc gtg cag		703
Leu Lys Asp Val Phe Ala Ala Met Ala Leu Leu Tyr Gly Pro Val Gln		
85 90 95 100		
tgg ctg cgc ctg tgg acg cag tgg cgc cgt gcc gcg gtg ctg gac cag		751
Trp Leu Arg Leu Trp Thr Gln Trp Arg Arg Ala Ala Val Leu Asp Gln		
101 106 111 116		
tgg ctc aca ctg ccc atc ttt gca tgg ccc gtg gcc tgg tgc ctc tac		799
Trp Leu Thr Leu Pro Ile Phe Ala Trp Pro Val Ala Trp Cys Leu Tyr		
117 122 127 132		
cta gac cgc ggc tgg cgg ccc tgg ctg ttc ctc tct ctt gag tgc gtc		847
Leu Asp Arg Gly Trp Arg Pro Trp Leu Phe Leu Ser Leu Glu Cys Val		
133 138 143 148		
tcc ctg gcc agt tat ggc ctc gct ctg ctg cat ccc cag ggc ttc gag		895
Ser Leu Ala Ser Tyr Gly Leu Ala Leu Leu His Pro Gln Gly Phe Glu		
149 154 159 164		
gtc gca ctg ggt gct cac gtg gtg gcc gct gtg ggg cag gcg ctg cgc		943
Val Ala Leu Gly Ala His Val Val Ala Ala Val Gly Gln Ala Leu Arg		
165 170 175 180		
acc cac agg cac tat ggc agc acc acc tcg gct acc tac tta gct ttg		991
Thr His Arg His Tyr Gly Ser Thr Thr Ser Ala Thr Tyr Leu Ala Leu		
181 186 191 196		
ggg gtg ctc tct tgc ctg ggc ttt gtg gtc ctc aag ctg tgt gac cat		1039
Gly Val Leu Ser Cys Leu Gly Phe Val Val Leu Lys Leu Cys Asp His		
197 202 207 212		
cag ctc gca cgg tgg cgt ctc ttc cag tgc ctc aca ggc cac ttc tgg		1087

Gln	Leu	Ala	Arg	Trp	Arg	Leu	Phe	Gln	Cys	Leu	Thr	Gly	His	Phe	Trp	
213					218					223					228	
tcc	aag	gtc	tgt	gac	gtg	ctc	cag	ttc	cac	ttt	gcg	ttt	ttg	ttt	ctg	1135
Ser	Lys	Val	Cys	Asp	Val	Leu	Gln	Phe	His	Phe	Ala	Phe	Leu	Phe	Leu	
229					234					239					244	
acg	cat	ttc	aac	act	cac	cca	aga	ttc	cat	ccc	tct	ggc	ggg	aag	acg	1183
Thr	His	Phe	Asn	Thr	His	Pro	Arg	Phe	His	Pro	Ser	Gly	Gly	Lys	Thr	
245					250					255					260	
cgt	tga	acccagggaa	gaacctgctg	aaaaccgatg	acccccagca	ttgaaatgga										1239
Arg	*															
261																
ctctgagatg	gcagcgtggt	gccagtgtca	gacatcctgt	gtgtgatgat	atgcactgat											1299
cacacaagac	tgccctttcc	tgagaagctg	cgggcttcgg	tgtggagggg	tgagtgctg											1359
tgatctcgac	aacttacttt	caaagacata	aagcacagat	ctccgcacag	gggatgtgtg											1419
tgttcctgat	gtaatttgca	taacttttct	gtagtttgaa	atgtttccaa	ataaatattg											1479
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aaaaaaaa																1546

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ggagtccttc	ccaaagttgt	ctaggtcctt	ccgcgccggg	gcctggtctt	cgtcgtcaac											180
acc	atg	gac	agc	tcc	cgg	gaa	ccg	act	ctg	ggg	cgc	ttg	gac	gcc	gct	228
Met	Asp	Ser	Ser	Arg	Glu	Pro	Thr	Leu	Gly	Arg	Leu	Asp	Ala	Ala		
1					5					10						
ggc	ttc	tgg	cag	gtc	tgg	cag	cgc	ttt	gat	gcg	gat	gaa	aaa	ggg	tac	276
Gly	Phe	Trp	Gln	Val	Trp	Gln	Arg	Phe	Asp	Ala	Asp	Glu	Lys	Gly	Tyr	
16					21					26					31	
ata	gaa	gag	aag	gaa	ctc	gat	gct	ttc	ttt	ctc	cac	atg	ttg	atg	aaa	324
Ile	Glu	Glu	Lys	Glu	Leu	Asp	Ala	Phe	Phe	Leu	His	Met	Leu	Met	Lys	
32					37					42					47	

ctg ggt act gat gac acg gtc atg aaa gca aat ttg cac aag gtg aaa	372
Leu Gly Thr Asp Asp Thr Val Met Lys Ala Asn Leu His Lys Val Lys	
48 53 58 63	
cag cag ttt atg act acc caa gat gcc tct aaa gat ggt cgc att cgg	420
Gln Gln Phe Met Thr Thr Gln Asp Ala Ser Lys Asp Gly Arg Ile Arg	
64 69 74 79	
atg aaa gag ctt gct ggt atg ttc tta tct gag gat gaa aac ttt ctt	468
Met Lys Glu Leu Ala Gly Met Phe Leu Ser Glu Asp Glu Asn Phe Leu	
80 85 90 95	
ctg ctc ttt cgc cgg gaa aac cca ctg gac agc agc gtg gag ttt atg	516
Leu Leu Phe Arg Arg Glu Asn Pro Leu Asp Ser Ser Val Glu Phe Met	
96 101 106 111	
cag att tgg cgc aaa tat gac gct gac agc agt ggc ttt ata tca gct	564
Gln Ile Trp Arg Lys Tyr Asp Ala Asp Ser Ser Gly Phe Ile Ser Ala	
112 117 122 127	
gct gag ctc cgc aac ttc ctc cga gac ctc ttt ctt cac cac aaa aag	612
Ala Glu Leu Arg Asn Phe Leu Arg Asp Leu Phe Leu His His Lys Lys	
128 133 138 143	
gcc att tct gag gct aaa ctg gaa gaa tac act ggc acc atg atg aag	660
Ala Ile Ser Glu Ala Lys Leu Glu Glu Tyr Thr Gly Thr Met Met Lys	
144 149 154 159	
att ttt gac aga aat aaa gat ggt cgg ttg gat cta aat gac tta gca	708
Ile Phe Asp Arg Asn Lys Asp Gly Arg Leu Asp Leu Asn Asp Leu Ala	
160 165 170 175	
agg att ctg gct ctt cag gaa aac ttc ctt ctc caa ttt aaa atg gat	756
Arg Ile Leu Ala Leu Gln Glu Asn Phe Leu Leu Gln Phe Lys Met Asp	
176 181 186 191	
gct tgt tct act gaa gaa agg aaa agg gac ttt gag aaa atc ttt gcc	804
Ala Cys Ser Thr Glu Glu Arg Lys Arg Asp Phe Glu Lys Ile Phe Ala	
192 197 202 207	
tac tat gat gtt agt aaa aca gga gcc ctg gaa ggc cca gaa gtg gat	852
Tyr Tyr Asp Val Ser Lys Thr Gly Ala Leu Glu Gly Pro Glu Val Asp	
208 213 218 223	
ggg ttt gtc aaa gac atg atg gag ctt gtc cag ccc agc atc agc ggg	900
Gly Phe Val Lys Asp Met Met Glu Leu Val Gln Pro Ser Ile Ser Gly	
224 229 234 239	
gtg gac ctt gat aag ttc cgc gag att ctc ctg cgt cac tgc gac gtg	948
Val Asp Leu Asp Lys Phe Arg Glu Ile Leu Leu Arg His Cys Asp Val	
240 245 250 255	
aac aag gat gga aaa att cag aag tct gag ctg gct ttg tgt ctt ggg	996
Asn Lys Asp Gly Lys Ile Gln Lys Ser Glu Leu Ala Leu Cys Leu Gly	
256 261 266 271	

ctg aaa atc aac cca taa tcccag actgctttgc cttttgctct tactatgttt 1050
 Leu Lys Ile Asn Pro *
 272 277

ctgtgatctt gctggtagaa ttgtatctgt gcattgatgt tgggaacaca gtgggcaaac 1110
 tcacaaatgg tgtgctattc ttgggcaaga agagggacgc tagggccttc cttccaccgg 1170
 cgtgatctat ccctgtctca ctgaaagccc ctgtgtagtg tctgtgttgt tttcccttga 1230
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 cttatgggct ttctgcttag tctgaaaggt gtgtggcatt catggcaatc ctgtaacttc 1410
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 <222> (97)..(1755)

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 Met Ser Arg Arg Gln Leu
 1

gag aga tgg gtc tgg agc tca cag caa gtc cag gct aga ggt aga aac 162
 Glu Arg Trp Val Trp Ser Ser Gln Gln Val Gln Ala Arg Gly Arg Asn
 7 12 17 22

gtg aga gcc cca cgg ctg ggg aag att gcc atg gga ttg gag atg agc 210
 Val Arg Ala Pro Arg Leu Gly Lys Ile Ala Met Gly Leu Glu Met Ser
 23 28 33 38

tcc aag gac agc cct ggc agt ctg gat gga aga gct tgg gaa gat gct 258
 Ser Lys Asp Ser Pro Gly Ser Leu Asp Gly Arg Ala Trp Glu Asp Ala
 39 44 49 54

cag aaa cca caa agt gcc tgg tgc ggt ggg agg aaa acc aga gtg tat 306
 Gln Lys Pro Gln Ser Ala Trp Cys Gly Gly Arg Lys Thr Arg Val Tyr
 55 60 65 70

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 Ala Thr Ser Ser Arg Arg Ala Pro Pro Ser Glu Gly Thr Arg Arg Gly
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Gly Ala Ala Arg Pro Glu Glu Ala Ala Glu Glu Gly Pro Pro Ala Ala	
87 92 97 102	
ccc ggc tca ctc cgg cac tcc ggg ccg ctc ggc ccc cat gcc tgc ccg	450
Pro Gly Ser Leu Arg His Ser Gly Pro Leu Gly Pro His Ala Cys Pro	
103 108 113 118	
acc gcg ctg ccg gag ccc cag gtg acc agc gcc atg tcc agc cag gtg	498
Thr Ala Leu Pro Glu Pro Gln Val Thr Ser Ala Met Ser Ser Gln Val	
119 124 129 134	
gtg ggc att gag cct ctc tac atc aag gca gag ccg gcc agc cct gac	546
Val Gly Ile Glu Pro Leu Tyr Ile Lys Ala Glu Pro ³ Ala Ser Pro Asp	
135 140 145 150	
agt cca aag ggt tcc tcc gag aca gag acc gag cct cct gtg gcc ctg	594
Ser Pro Lys Gly Ser Ser Glu Thr Glu Thr Glu Pro Pro Val Ala Leu	
151 156 161 166	
gcc cct ggt cca gct ccc act cgc tgc ctc cca ggc cac aag gaa gag	642
Ala Pro Gly Pro Ala Pro Thr Arg Cys Leu Pro Gly His Lys Glu Glu	
167 172 177 182	
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Glu Asp Gly Glu Gly Ala Gly Pro Gly Glu Gln Gly Gly Gly Lys Leu	
183 188 193 198	
gtg ctc agc tcc ctg ccc aag cgc ctc tgc ctg gtc tgt ggg gac gtg	738
Val Leu Ser Ser Leu Pro Lys Arg Leu Cys Leu Val Cys Gly Asp Val	
199 204 209 214	
gcc tcc ggc tac cac tat ggt gtg gca tcc tgt gag gcc tgc aaa gcc	786
Ala Ser Gly Tyr His Tyr Gly Val Ala Ser Cys Glu Ala Cys Lys Ala	
215 220 225 230	
ttc ttc aag agg acc atc cag ggg agc atc gag tac agc tgt ccg gcc	834
Phe Phe Lys Arg Thr Ile Gln Gly Ser Ile Glu Tyr Ser Cys Pro Ala	
231 236 241 246	
tcc aac gag tgt gag atc acc aag cgg aga cgc aag gcc tgc cag gcc	882
Ser Asn Glu Cys Glu Ile Thr Lys Arg Arg Arg Lys Ala Cys Gln Ala	
247 252 257 262	
tgc cgc ttc acc aag tgc ctg cgg gtg ggc atg ctc aag gag gga gtg	930
Cys Arg Phe Thr Lys Cys Leu Arg Val Gly Met Leu Lys Glu Gly Val	
263 268 273 278	
cgc ctg gac cgc gtc cgg ggt ggg cgg cag aag tac aag cgg cgg ccg	978
Arg Leu Asp Arg Val Arg Gly Gly Arg Gln Lys Tyr Lys Arg Arg Pro	
279 284 289 294	
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Glu Val Asp Pro Leu Pro Phe Pro Gly Pro Phe Pro Ala Gly Pro Leu	
295 300 305 310	
gca gtc gct gga ggc ccc cgg aag aca gca gcc cca gtg aat gca ctg	1074

Ala Val Ala Gly Gly Pro Arg Lys Thr Ala Ala Pro Val Asn Ala Leu	
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Val Ser His Leu Leu Val Val Glu Pro Glu Lys Leu Tyr Ala Met Pro	
327 332 337 342	
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Asp Pro Ala Gly Pro Asp Gly His Leu Pro Ala Val Ala Thr Leu Cys	
343 348 353 358	
gac ctc ttt gac cga gag att gtg gtc acc atc agc tgg gcc aag agc	1218
Asp Leu Phe Asp Arg Glu Ile Val Val Thr Ile Ser Trp Ala Lys Ser	
359 364 369 374	
atc cca ggc ttc tca tcg ctg tcg ctg tct gac cag atg tca gta ctg	1266
Ile Pro Gly Phe Ser Ser Leu Ser Leu Ser Asp Gln Met Ser Val Leu	
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cag agc gtg tgg atg gag gtg ctg gtg ctg ggt gtg gcc cag cgc tca	1314
Gln Ser Val Trp Met Glu Val Leu Val Leu Gly Val Ala Gln Arg Ser	
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ctg cca ctg cag gat gag ctg gcc ttc gct gag gac tta gtc ctg gat	1362
Leu Pro Leu Gln Asp Glu Leu Ala Phe Ala Glu Asp Leu Val Leu Asp	
407 412 417 422	
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Glu Glu Gly Ala Arg Ala Ala Gly Leu Gly Glu Leu Gly Ala Ala Leu	
423 428 433 438	
ctg caa cta gtg cgg cgg ctg cag gcc ctg cgg ctg gag cga gag gag	1458
Leu Gln Leu Val Arg Arg Leu Gln Ala Leu Arg Leu Glu Arg Glu Glu	
439 444 449 454	
tat gtt cta cta aag gcc ttg gcc ctt gcc aat tca gac tct gtg cac	1506
Tyr Val Leu Leu Lys Ala Leu Ala Leu Ala Asn Ser Asp Ser Val His	
455 460 465 470	
atc gaa gat gcc gag gct gtg gag cag ctg cga gaa gct ctg cac gag	1554
Ile Glu Asp Ala Glu Ala Val Glu Gln Leu Arg Glu Ala Leu His Glu	
471 476 481 486	
gcc ctg ctg gag tat gaa gcc ggc cgg gct ggc ccc gga ggg ggt gct	1602
Ala Leu Leu Glu Tyr Glu Ala Gly Arg Ala Gly Pro Gly Gly Gly Ala	
487 492 497 502	
gag cgg cgg cgg gcg ggc agg ctg ctg ctc acg cta ccg ctc ctc cgc	1650
Glu Arg Arg Arg Ala Gly Arg Leu Leu Leu Thr Leu Pro Leu Leu Arg	
503 508 513 518	
cag aca gcg ggc aaa gtg ctg gcc cat ttc tat ggg gtg aag ctg gag	1698
Gln Thr Ala Gly Lys Val Leu Ala His Phe Tyr Gly Val Lys Leu Glu	
519 524 529 534	
ggc aag gtg ccc atg cac aag ctg ttc ttg gag atg ctc gag gcc atg	1746
Gly Lys Val Pro Met His Lys Leu Phe Leu Glu Met Leu Glu Ala Met	

535	540	545	550	
atg gac tga ggcaagg ggtgggactg gtgggggttc tggcaggacc tgcctagcat				1802
Met Asp *				
551				
ggggtcagcc ccaagggctg gggcggagct ggggtctggg cagtgccaca gcctgctggc				1862
agggccaggg caatgccatc agcccctggg aacaggcccc acgccctctc ctccccctcc				1922
tagggggtgt cagaagctgg gaacgtgtgt ccaggctctg ggcacagtgc tgccccttgc				1982
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gatgcgtggg aggcagaaac ctatctcagg gagggaaggg gatggaggcc agagtctccc				2102
agtgggtgat gcttttgctg ctgcttaatc ctaccccctc ttcaaagcag agtgggactt				2162
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gtccccctt gaagcaataa ctccaagcag actccagccc ctggaccctt ggggtggcca				2282
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ccctgcagag caataacact atatttattt ttgggtttgg ccagggaggc gcagggacat				2402
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 <222> (196) .. (1158)

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ccctcgcccc cctgagttag tccggtctcc cggcgaaagt gagcgaggtt tgcccggagc	180
gcgcacgagg ggaaa atg cct aaa aaa aag act ggt gcg agg aag aag gct	231
Met Pro Lys Lys Lys Thr Gly Ala Arg Lys Lys Ala	
1 5 10	
gag aac cgc cga gaa cgt gaa aaa caa cta aga gca tca aga agc act	279
Glu Asn Arg Arg Glu Arg Glu Lys Gln Leu Arg Ala Ser Arg Ser Thr	

13	18	23	28	
ata gat tta gct aaa cat cca tgt aat gcc tca atg gaa tgt gac aag				327
Ile Asp Leu Ala Lys His Pro Cys Asn Ala Ser Met Glu Cys Asp Lys				
29	34	39	44	
tgt cag agg cgg cag aag aat aga gca ttt tgc tac ttt tgt aat tct				375
Cys Gln Arg Arg Gln Lys Asn Arg Ala Phe Cys Tyr Phe Cys Asn Ser				
45	50	55	60	
gta cag aag tta cca att tgt gca cag tgt ggg aaa aca aag tgc atg				423
Val Gln Lys Leu Pro Ile Cys Ala Gln Cys Gly Lys Thr Lys Cys Met				
61	66	71	76	
atg aag tct tca gac tgt gtc ata aag cat gct ggt gta tac agt act				471
Met Lys Ser Ser Asp Cys Val Ile Lys His Ala Gly Val Tyr Ser Thr				
77	82	87	92	
ggc ctt gca atg gtg ggt gca ata tgt gac ttc tgt gaa gct tgg gtt				519
Gly Leu Ala Met Val Gly Ala Ile Cys Asp Phe Cys Glu Ala Trp Val				
93	98	103	108	
tgc cat ggg agg aag tgt ctc agt aca cat gcc tgt gcc tgc cct ctc				567
Cys His Gly Arg Lys Cys Leu Ser Thr His Ala Cys Ala Cys Pro Leu				
109	114	119	124	
act gat gct gag tgt gtt gaa tgt gaa cga ggc gtg tgg gac cat gga				615
Thr Asp Ala Glu Cys Val Glu Cys Glu Arg Gly Val Trp Asp His Gly				
125	130	135	140	
ggc aga ata ttc agt tgt tct ttt tgc cat aac ttt ctc tgt gaa gat				663
Gly Arg Ile Phe Ser Cys Ser Phe Cys His Asn Phe Leu Cys Glu Asp				
141	146	151	156	
gat caa ttt gag cat caa gcc agc tgc cag gtt tta gag gca gaa aca				711
Asp Gln Phe Glu His Gln Ala Ser Cys Gln Val Leu Glu Ala Glu Thr				
157	162	167	172	
ttt aaa tgt gtt tca tgc aat cgg ctt ggt cag cac tca tgt ctc cgt				759
Phe Lys Cys Val Ser Cys Asn Arg Leu Gly Gln His Ser Cys Leu Arg				
173	178	183	188	
tgt aag gct tgt ttc tgt gat gat cat aca agg agc aaa gtg ttt aag				807
Cys Lys Ala Cys Phe Cys Asp Asp His Thr Arg Ser Lys Val Phe Lys				
189	194	199	204	
caa gaa aaa gga aaa cag cct cct tgt cct aaa tgt ggg cat gaa act				855
Gln Glu Lys Gly Lys Gln Pro Pro Cys Pro Lys Cys Gly His Glu Thr				
205	210	215	220	
cag gag act aag gac ctt agc atg tca aca cgc tcc ctg aaa ttt ggc				903
Gln Glu Thr Lys Asp Leu Ser Met Ser Thr Arg Ser Leu Lys Phe Gly				
221	226	231	236	
agg cag act gga ggt gaa gag gga gat gga gct tct ggg tat gat gct				951
Arg Gln Thr Gly Gly Glu Glu Gly Asp Gly Ala Ser Gly Tyr Asp Ala				
237	242	247	252	

tat tgg aag aac ctt tca tct gat aag tat ggt gat acc agc tac cac	999
Tyr Trp Lys Asn Leu Ser Ser Asp Lys Tyr Gly Asp Thr Ser Tyr His	
253 258 263 268	
gat gag gag gag gat gag tat gaa gca gag gat gat gaa gag gaa gaa	1047
Asp Glu Glu Glu Asp Glu Tyr Glu Ala Glu Asp Asp Glu Glu Glu Glu	
269 274 279 284	
gat gaa ggc aga aag gat tca gat act gag tca tca gat ttg ttt act	1095
Asp Glu Gly Arg Lys Asp Ser Asp Thr Glu Ser Ser Asp Leu Phe Thr	
285 290 295 300	
aat ttg aat tta gga agg acc tat gct agt ggc tat gct cac tat gag	1143
Asn Leu Asn Leu Gly Arg Thr Tyr Ala Ser Gly Tyr Ala His Tyr Glu	
301 306 311 316	
gaa caa gag aac tag gggagctgct ctgggtggccg tgtgtgagag gagcaggagt	1198
Glu Gln Glu Asn *	
317	
gagtgtgtgt gcttgatgaa ttgtgtgtgg ttgttcaaaa gtaccttagc cacttagcct	1258
tgtgcagaag actagttaca cttaatgggc caagcaatag ggtgtagcgt ttttatagaa	1318
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cttaaagtga ttgataagggt gactagtttag ccatttttca gagatacagt atcagaaata	1798
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ggc tcg ggc ggg gta ggc aaa tcc gcc ctg acc gtg cag ttc gtg acc		99
Gly Ser Gly Gly Val Gly Lys Ser Ala Leu Thr Val Gln Phe Val Thr		
10 15 20 25		
ggc acc ttc atc gag aaa tac gac ccc acc atc gag gac ttc tac cgc		147
Gly Thr Phe Ile Glu Lys Tyr Asp Pro Thr Ile Glu Asp Phe Tyr Arg		
26 31 36 41		
aag gag atc gag gtg gat tcg tcg ccg tcg gtg ctg gag atc ctg gac		195
Lys Glu Ile Glu Val Asp Ser Ser Pro Ser Val Leu Glu Ile Leu Asp		
42 47 52 57		
acg gcg ggc acc gag cag ttc gcg tcc atg cgg gac ctg tac atc aag		243
Thr Ala Gly Thr Glu Gln Phe Ala Ser Met Arg Asp Leu Tyr Ile Lys		
58 63 68 73		
aac ggc cag ggc ttc atc ctc gtc tac agc ctc gtc aac cag cag agc		291
Asn Gly Gln Gly Phe Ile Leu Val Tyr Ser Leu Val Asn Gln Gln Ser		
74 79 84 89		
ttc cag gac atc aag ccc atg cgg gac cag atc atc cgc gtg aag cgg		339
Phe Gln Asp Ile Lys Pro Met Arg Asp Gln Ile Ile Arg Val Lys Arg		
90 95 100 105		
tat gag aaa gtg cca gtc atc ttg gtt ggg aac aaa gtg gac ctg gaa		387
Tyr Glu Lys Val Pro Val Ile Leu Val Gly Asn Lys Val Asp Leu Glu		
106 111 116 121		
agt gag aga gaa gta tcg tcc agc gaa ggc aga gcc ctt gct gaa gag		435
Ser Glu Arg Glu Val Ser Ser Ser Glu Gly Arg Ala Leu Ala Glu Glu		
122 127 132 137		
tgg ggc tgc ccc ttt atg gaa act tcc gct aag agt aaa aca atg gtg		483
Trp Gly Cys Pro Phe Met Glu Thr Ser Ala Lys Ser Lys Thr Met Val		
138 143 148 153		
gac gaa ctc ttt gca gaa att gtg agg cag atg aac tat gct gct cag		531
Asp Glu Leu Phe Ala Glu Ile Val Arg Gln Met Asn Tyr Ala Ala Gln		
154 159 164 169		
cct gac aaa gat gac cca tgc tgt tct gca tgt aac ata caa tag cat		579
Pro Asp Lys Asp Asp Pro Cys Cys Ser Ala Cys Asn Ile Gln *		
170 175 180		
ccaaatatgg ctgtcctgga tgggatttgc ccaatgtcgt aggtgataga aaactcgcct		639
actccactgc agaacttgca gaatgcgtgg tgtaaatcta cagagaactg cagcccttat		699
tcagaattga gcagtgattg tcagttgata tctctgagta acatttgggt tcagtaacta		759
cagttttcac catttgcct cagtctcctt tatgcactcg caactttaag gcatagtcca		819

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<210> 457
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<212> DNA
<213> Homo sapiens

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<220>
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<222> (177)..(1835)

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acctgtgcgt cctccgtcc cgtcccgtcc cggggtcacc ccggagcctg tccgct 176
atg cgg ctc ctg cct cta gcc cca ggt cgg ctc cgg cgg ggc agc ccc 224
Met Arg Leu Leu Pro Leu Ala Pro Gly Arg Leu Arg Arg Gly Ser Pro
1 5 10 15
cgc cac ctg ccc tcc tgc agc cca gcg ctg cta ctg ctg gtg ctg ggc 272
Arg His Leu Pro Ser Cys Ser Pro Ala Leu Leu Leu Leu Val Leu Gly
17 22 27 32
ggc tgc ctg ggg gtc ttc ggg gtg gct gcg gga acc cgg agg ccc aac 320
Gly Cys Leu Gly Val Phe Gly Val Ala Ala Gly Thr Arg Arg Pro Asn
33 38 43 48

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Ala Lys Thr Pro Met Thr Asn Ser Ser Ile Gln Phe Leu Asp Asn Ala	
273 278 283 288	
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Phe Arg Lys Arg Trp Gln Thr Leu Leu Ser Val Asp Asp Leu Val Glu	
289 294 299 304	
aaa ctg gtc aag agg ctg gag ttc act ggg gag ctc aac aac act tac	1136
Lys Leu Val Lys Arg Leu Glu Phe Thr Gly Glu Leu Asn Asn Thr Tyr	
305 310 315 320	
atc ttc tat acc tca gac aat ggc tat cac aca gga cag ttt tcc ttg	1184
Ile Phe Tyr Thr Ser Asp Asn Gly Tyr His Thr Gly Gln Phe Ser Leu	
321 326 331 336	
cca ata gac aag aga cag ctg tat gag ttt gat atc aaa gtt cca ctg	1232
Pro Ile Asp Lys Arg Gln Leu Tyr Glu Phe Asp Ile Lys Val Pro Leu	
337 342 347 352	
ttg gtt cga gga cct ggg atc aaa cca aat cag aca agc aag atg ctg	1280
Leu Val Arg Gly Pro Gly Ile Lys Pro Asn Gln Thr Ser Lys Met Leu	
353 358 363 368	
gtt gcc aac att gac ttg ggt cct act att ttg gac att gct ggc tac	1328
Val Ala Asn Ile Asp Leu Gly Pro Thr Ile Leu Asp Ile Ala Gly Tyr	
369 374 379 384	
gac cta aat aag aca cag atg gat ggg atg tcc tta ttg ccc att ttg	1376
Asp Leu Asn Lys Thr Gln Met Asp Gly Met Ser Leu Leu Pro Ile Leu	
385 390 395 400	
aga ggt gcc agt aac ttg acc tgg cga tca gat gtc ctg gtg gaa tac	1424
Arg Gly Ala Ser Asn Leu Thr Trp Arg Ser Asp Val Leu Val Glu Tyr	
401 406 411 416	
caa gga gaa ggc cgt aac gtc act gac cca aca tgc cct tcc ctg agt	1472
Gln Gly Glu Gly Arg Asn Val Thr Asp Pro Thr Cys Pro Ser Leu Ser	
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cct ggc gta tct caa tgc ttc cca gac tgt gta tgt gaa gat gct tat	1520
Pro Gly Val Ser Gln Cys Phe Pro Asp Cys Val Cys Glu Asp Ala Tyr	
433 438 443 448	
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Asn Asn Thr Tyr Ala Cys Val Arg Thr Met Ser Ala Leu Trp Asn Leu	
449 454 459 464	
cag tat tgc gag ttt gat gac cag gag gtg ttt gta gaa gtc tat aat	1616
Gln Tyr Cys Glu Phe Asp Asp Gln Glu Val Phe Val Glu Val Tyr Asn	
465 470 475 480	
ctg act gca gac cca gac cag atc act aac att gct aaa acc ata gac	1664
Leu Thr Ala Asp Pro Asp Gln Ile Thr Asn Ile Ala Lys Thr Ile Asp	
481 486 491 496	
cca gag ctt tta gga aag atg aac tat cgg tta atg atg tta cag tcc	1712
Pro Glu Leu Leu Gly Lys Met Asn Tyr Arg Leu Met Met Leu Gln Ser	

497	502	507	512	
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Cys Ser Gly Pro Thr	Cys Arg Thr Pro Gly	Val Phe Asp Pro Gly	Tyr	
513	518	523	528	
agg ttt gac ccc cgt	ctc atg ttc agc aat	cgc ggc agt gtc agg	act	1808
Arg Phe Asp Pro Arg	Leu Met Phe Ser Asn	Arg Gly Ser Val Arg	Thr	
529	534	539	544	
cga aga ttt tcc aaa	cat ctt ctg tag cgacc	tcacacagcc tctgcagatg		1860
Arg Arg Phe Ser Lys	His Leu Leu *			
545	550			
gatccctgca cgctctttc	tgatgaagtg attgtagtag	gtgtctgtag ctagtcttca		1920
agaccacacc tggaagagtt	tctgggctgg ctttaagtcc	tgtttgaaaa agcaaccag		1980
tcagctgact tctcgtgca	atgtgttaaa ctgtgaactc	tgcccatgtg tcaggagtgg		2040
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accttcgcct cctgggttca	agcgattctc ctgcctccgc	ctcctgagta gctgggatta		3180

taggcacaca ccaccacgcc cagctaattt tttgtatttt tagtagagac agagtttcac	3240
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aagtgagcag cggggctcct gcctcccggc ctgggtcccg aagacccag aagaaccgg	180
aacttgcttc cattcggaat ccagggacca ccctttgcac tcagtaggcc tttgttttcc	240
tgogtgaaa gcggttgggc ttgggagcg	291
atg gag ccg gag ttc ttg tac	
Met Glu Pro Glu Phe Leu Tyr	
1 5	
gac ctg ctg cag ctc ccc aag ggg gtg gag ccc cca gcg gag gag gag	339
Asp Leu Leu Gln Leu Pro Lys Gly Val Glu Pro Pro Ala Glu Glu Glu	
8 13 18 23	
ctc tca aaa gga gga aag aag aaa tac ctg cca ccc act tcc cgg aag	387
Leu Ser Lys Gly Gly Lys Lys Lys Tyr Leu Pro Pro Thr Ser Arg Lys	
24 29 34 39	
gac ccc aaa ttt gaa gaa ctg cag aag ctg cag gtg ttg atg gag tgg	435
Asp Pro Lys Phe Glu Glu Leu Gln Lys Leu Gln Val Leu Met Glu Trp	
40 45 50 55	
atc aat/gcc act ctt ctc ccc gag cac att gtg gtc cgc agc ctg gag	483
Ile Asn Ala Thr Leu Leu Pro Glu His Ile Val Val Arg Ser Leu Glu	
56 61 66 71	
gag gag atg ttc gag ggg ctc atc cta cac cac cta ttc cag agg ctg	531

296

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Met Ala Asp Thr Asp Leu Phe Met Glu Cys Glu Glu Glu Glu Leu Glu
1 5 10 15
cca tgg cag aaa atc agt gat gtc att gag gac tct gta gtt gaa gat 154
Pro Trp Gln Lys Ile Ser Asp Val Ile Glu Asp Ser Val Val Glu Asp
17 22 27 32
tat aat tca gtg gat aaa act acc aca gct ggc aat cct ttg gtc cag 202
Tyr Asn Ser Val Asp Lys Thr Thr Thr Ala Gly Asn Pro Leu Val Gln
33 38 43 48
caa ggt gga cag cca ctg atc ctg acc cag aat cca gcc cca ggt ctg 250
Gln Gly Gly Gln Pro Leu Ile Leu Thr Gln Asn Pro Ala Pro Gly Leu
49 54 59 64
ggc aca atg gtt act caa cca gta ttg agg cct gtt cag gtc atg cag 298
Gly Thr Met Val Thr Gln Pro Val Leu Arg Pro Val Gln Val Met Gln
65 70 75 80
aat gcc aat cat gtg act agt tcc cct gtg gcc tca caa cca ata ttt 346
Asn Ala Asn His Val Thr Ser Ser Pro Val Ala Ser Gln Pro Ile Phe
81 86 91 96
atc act acg cag gga ttt cct gta agg aat gtc cgg cct gta caa aat 394
Ile Thr Thr Gln Gly Phe Pro Val Arg Asn Val Arg Pro Val Gln Asn
97 102 107 112
gca atg aat cag gtt ggg att gtg ctg aac gta cag caa ggc caa acg 442

Ala Met Asn Gln Val Gly Ile Val Leu Asn Val Gln Gln Gly Gln Thr	
113 118 123 128	
gtt aga cca att aca cta gtt cca gcc cca ggt acc cag ttt gtt aag	490
Val Arg Pro Ile Thr Leu Val Pro Ala Pro Gly Thr Gln Phe Val Lys	
129 134 139 144	
ccg aca gtt gga gtt cca caa gtg ttc tcc cag atg acc cct gtg agg	538
Pro Thr Val Gly Val Pro Gln Val Phe Ser Gln Met Thr Pro Val Arg	
145 150 155 160	
cca ggc tcc aca atg cct gtg agg ccc acc acc aac acc ttc acc acc	586
Pro Gly Ser Thr Met Pro Val Arg Pro Thr Thr Asn Thr Phe Thr Thr	
161 166 171 176	
gtc atc ccg gcc act ctt acc att cga agc acc gtc cca cag tcc cag	634
Val Ile Pro Ala Thr Leu Thr Ile Arg Ser Thr Val Pro Gln Ser Gln	
177 182 187 192	
tcc cag cag acc aag tcc act ccc agc act tct acc act ccc act gcc	682
Ser Gln Gln Thr Lys Ser Thr Pro Ser Thr Ser Thr Thr Pro Thr Ala	
193 198 203 208	
aca cag cca acc tca ctg ggg caa cta gct gtt cag tct cca ggc cag	730
Thr Gln Pro Thr Ser Leu Gly Gln Leu Ala Val Gln Ser Pro Gly Gln	
209 214 219 224	
tca aac cag acc acg aat ccc aag cta gct ccc tcc ttc ccc tct cca	778
Ser Asn Gln Thr Thr Asn Pro Lys Leu Ala Pro Ser Phe Pro Ser Pro	
225 230 235 240	
cct gca gtg agc att gcc agc ttt gtc act gtg aag cga cct ggt gtt	826
Pro Ala Val Ser Ile Ala Ser Phe Val Thr Val Lys Arg Pro Gly Val	
241 246 251 256	
aca ggc gaa aat agc aat gaa gtg gcc aaa ttg gtg aat acc ctt aac	874
Thr Gly Glu Asn Ser Asn Glu Val Ala Lys Leu Val Asn Thr Leu Asn	
257 262 267 272	
acc atc cct tcc ctg ggc cag agt cct ggg cca gtg gtg gtg tcc aac	922
Thr Ile Pro Ser Leu Gly Gln Ser Pro Gly Pro Val Val Val Ser Asn	
273 278 283 288	
aac agc tct gct cat ggc tct caa aga acc agc gga cct gag tct tca	970
Asn Ser Ser Ala His Gly Ser Gln Arg Thr Ser Gly Pro Glu Ser Ser	
289 294 299 304	
atg aaa gtg acc tct tcc atc cca gta ttt gac ctc cag gat ggt gga	1018
Met Lys Val Thr Ser Ser Ile Pro Val Phe Asp Leu Gln Asp Gly Gly	
305 310 315 320	
cgg aaa ata tgt cca cga tgt aat gct caa ttt cgt gtt act gaa gct	1066
Arg Lys Ile Cys Pro Arg Cys Asn Ala Gln Phe Arg Val Thr Glu Ala	
321 326 331 336	
ttg aga ggt cac atg tgt tac tgt tgc cca gaa atg gtt gaa tac cag	1114
Leu Arg Gly His Met Cys Tyr Cys Cys Pro Glu Met Val Glu Tyr Gln	

337	342	347	352	
aag aaa gga aag tcc ctg gat tca gaa ccc agt gtc cca tca gca gca				1162
Lys Lys Gly Lys Ser Leu Asp Ser Glu Pro Ser Val Pro Ser Ala Ala				
353	358	363	368	
aag ccc cca tcc cct gag aaa aca gct cct gtt gct tcc aca ccc tct				1210
Lys Pro Pro Ser Pro Glu Lys Thr Ala Pro Val Ala Ser Thr Pro Ser				
369	374	379	384	
tct aca cct att cct gct ctg tca ccg cct acc aaa gta cca gaa cca				1258
Ser Thr Pro Ile Pro Ala Leu Ser Pro Pro Thr Lys Val Pro Glu Pro				
385	390	395	400	
aat gag aac gtg ggc gat gcc gtc cag acc aaa ctc att atg ctt gta				1306
Asn Glu Asn Val Gly Asp Ala Val Gln Thr Lys Leu Ile Met Leu Val				
401	406	411	416	
gat gac ttc tac tat gga cgg gat ggt ggc aaa gta gcc cag ctc aca				1354
Asp Asp Phe Tyr Tyr Gly Arg Asp Gly Gly Lys Val Ala Gln Leu Thr				
417	422	427	432	
aat ttc cct aag gtc gcc aca tct ttc cga tgc cca cat tgt acc aaa				1402
Asn Phe Pro Lys Val Ala Thr Ser Phe Arg Cys Pro His Cys Thr Lys				
433	438	443	448	
agg cta aaa aac aat att cga ttc atg aac cat atg aaa cac cac gta				1450
Arg Leu Lys Asn Asn Ile Arg Phe Met Asn His Met Lys His His Val				
449	454	459	464	
gaa ctc gat cag cag aac ggt gag gta gat ggt cac act atc tgc cag				1498
Glu Leu Asp Gln Gln Asn Gly Glu Val Asp Gly His Thr Ile Cys Gln				
465	470	475	480	
cac tgt tac cgc cag ttt tcc act ccc ttc cag ctt cag tgc cac ttg				1546
His Cys Tyr Arg Gln Phe Ser Thr Pro Phe Gln Leu Gln Cys His Leu				
481	486	491	496	
gaa aat gtt cat agt ccc tat gaa tct act acc aag tgc aag atc tgt				1594
Glu Asn Val His Ser Pro Tyr Glu Ser Thr Thr Lys Cys Lys Ile Cys				
497	502	507	512	
gaa tgg gcg ttt gaa agt gag cca cta ttt ctc cag cat atg aag gat				1642
Glu Trp Ala Phe Glu Ser Glu Pro Leu Phe Leu Gln His Met Lys Asp				
513	518	523	528	
act cat aag cct gga gag atg cct tat gtt tgc cag gtg tgt caa tat				1690
Thr His Lys Pro Gly Glu Met Pro Tyr Val Cys Gln Val Cys Gln Tyr				
529	534	539	544	
cgc tcc tca ctc tac tct gag gta gat gtc cat ttt cgg atg atc cat				1738
Arg Ser Ser Leu Tyr Ser Glu Val Asp Val His Phe Arg Met Ile His				
545	550	555	560	
gag gat acc cgg cat ctg ctc tgc cct tat tgc ctg aag gtc ttc aaa				1786
Glu Asp Thr Arg His Leu Leu Cys Pro Tyr Cys Leu Lys Val Phe Lys				
561	566	571	576	

aat ggc aat gca ttc caa cag cat tac atg agg cac cag aag aga aat	1834
Asn Gly Asn Ala Phe Gln Gln His Tyr Met Arg His Gln Lys Arg Asn	
577 582 587 592	
ggt tat cac tgc aac aaa tgc cgg ctg cag ttt ctc ttt gcc aag gac	1882
Val Tyr His Cys Asn Lys Cys Arg Leu Gln Phe Leu Phe Ala Lys Asp	
593 598 603 608	
aaa att gaa cac aag ctt caa cac cat aaa acc ttc cgt aaa ccc aag	1930
Lys Ile Glu His Lys Leu Gln His His Lys Thr Phe Arg Lys Pro Lys	
609 614 619 624	
cag ctg gag ggc ttg aaa cca ggc acc aag gtg aca ^u atc cgg gct tcc	1978
Gln Leu Glu Gly Leu Lys Pro Gly Thr Lys Val Thr Ile Arg Ala Ser	
625 630 635 640	
cga ggg cag cca cga act gtt cct gta tcc tct aat gat aca cct ccc	2026
Arg Gly Gln Pro Arg Thr Val Pro Val Ser Ser Asn Asp Thr Pro Pro	
641 646 651 656	
agc gcc ttg cag gag gca gca ccg ctg acc tcc tca atg gac cct ctg	2074
Ser Ala Leu Gln Glu Ala Ala Pro Leu Thr Ser Ser Met Asp Pro Leu	
657 662 667 672	
cct gtc ttc ctt tat ccc cct gtc cag cgc agc atc cag aag aga gct	2122
Pro Val Phe Leu Tyr Pro Pro Val Gln Arg Ser Ile Gln Lys Arg Ala	
673 678 683 688	
ggt agg aaa atg agt gtc atg ggc cgg cag aca tgc ctg gag tgc agc	2170
Val Arg Lys Met Ser Val Met Gly Arg Gln Thr Cys Leu Glu Cys Ser	
689 694 699 704	
ttc gag atc cca gac ttc cct aat cat ttc cct act tac gta cac tgc	2218
Phe Glu Ile Pro Asp Phe Pro Asn His Phe Pro Thr Tyr Val His Cys	
705 710 715 720	
tct ctg tgt cgc tat agc acc tgc tgt tct cga gct tat gcc aac cac	2266
Ser Leu Cys Arg Tyr Ser Thr Cys Cys Ser Arg Ala Tyr Ala Asn His	
721 726 731 736	
atg atc aac aat cat gtt cca cgg aag agc ccc aag tat ttg gct ttg	2314
Met Ile Asn Asn His Val Pro Arg Lys Ser Pro Lys Tyr Leu Ala Leu	
737 742 747 752	
ttt aaa aat tct gtg agt gga atc aag ctg gcc tgc act tca tgt acc	2362
Phe Lys Asn Ser Val Ser Gly Ile Lys Leu Ala Cys Thr Ser Cys Thr	
753 758 763 768	
ttt gtt acc tct gtg ggc gat gct atg gcc aag cat ttg gta ttc aac	2410
Phe Val Thr Ser Val Gly Asp Ala Met Ala Lys His Leu Val Phe Asn	
769 774 779 784	
ccc tct cac aga tcc agc agc atc ctg cca cgg gga ctc act tgg ata	2458
Pro Ser His Arg Ser Ser Ser Ile Leu Pro Arg Gly Leu Thr Trp Ile	
785 790 795 800	

gct cac tca agg cat ggc cag act cgt gac cga gtg cat gac cgg aac	2506
Ala His Ser Arg His Gly Gln Thr Arg Asp Arg Val His Asp Arg Asn	
801 806 811 816	
gtg aag aat atg tac cct cct cct tcc ttc ccc act aac aaa gct gcc	2554
Val Lys Asn Met Tyr Pro Pro Pro Ser Phe Pro Thr Asn Lys Ala Ala	
817 822 827 832	
act gtg aaa tct gcg ggg gcc acc cca gct gag cct gaa gag cta cta	2602
Thr Val Lys Ser Ala Gly Ala Thr Pro Ala Glu Pro Glu Glu Leu Leu	
833 838 843 848	
act ccc tta gcc cca gca ctc cca tca cca gcc tca act gca acc cca	2650
Thr Pro Leu Ala Pro Ala Leu Pro Ser Pro Ala Ser Thr Ala Thr Pro	
849 854 859 864	
cca cca acc ccc act cac ccg cag gct tta gcc ctt cca ccg ctg gct	2698
Pro Pro Thr Pro Thr His Pro Gln Ala Leu Ala Leu Pro Pro Leu Ala	
865 870 875 880	
aca gag gga gcc gaa tgt ctg aat gtt gat gat cag gat gaa ggg agc	2746
Thr Glu Gly Ala Glu Cys Leu Asn Val Asp Asp Gln Asp Glu Gly Ser	
881 886 891 896	
cca gtc acc caa gaa cct gag cta gca tca ggt ggt ggt ggt agt ggt	2794
Pro Val Thr Gln Glu Pro Glu Leu Ala Ser Gly Gly Gly Gly Ser Gly	
897 902 907 912	
gga gtt ggc aaa aag gag cag ctg tct gtg aag aag ctt cga gta gta	2842
Gly Val Gly Lys Lys Glu Gln Leu Ser Val Lys Lys Leu Arg Val Val	
913 918 923 928	
ctg ttt gct cta tgc tgc aat aca gaa cag gca gct gaa cac ttc cga	2890
Leu Phe Ala Leu Cys Cys Asn Thr Glu Gln Ala Ala Glu His Phe Arg	
929 934 939 944	
aat ccc cag cga cgt att cgc cgt tgg ctt cga cgt ttc cag gcc tcc	2938
Asn Pro Gln Arg Arg Ile Arg Arg Trp Leu Arg Arg Phe Gln Ala Ser	
945 950 955 960	
cag ggg gag aat cta gag ggc aaa tat ctg agc ttt gag gca gaa gag	2986
Gln Gly Glu Asn Leu Glu Gly Lys Tyr Leu Ser Phe Glu Ala Glu Glu	
961 966 971 976	
aaa ctg gct gag tgg gtg cta acc cag cgc gaa caa cag cta cct gta	3034
Lys Leu Ala Glu Trp Val Leu Thr Gln Arg Glu Gln Gln Leu Pro Val	
977 982 987 992	
aat gag gag acc ttg ttc cag aag gcc acc aaa ata gga cgt tct ttg	3082
Asn Glu Glu Thr Leu Phe Gln Lys Ala Thr Lys Ile Gly Arg Ser Leu	
993 998 1003 1008	
gaa ggg ggg ttt aag atc tcc tat gag tgg gct gtg cgt ttc atg ctg	3130
Glu Gly Gly Phe Lys Ile Ser Tyr Glu Trp Ala Val Arg Phe Met Leu	
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Leu Val Gln Arg Ser Phe Leu Val Ala Ser Val Leu Pro Gly Pro Asp				
1265	1270	1275	1280	
ggc aac att aac tca cct aca aga aat gct gac atg cag gag gag cta				3946
Gly Asn Ile Asn Ser Pro Thr Arg Asn Ala Asp Met Gln Glu Glu Leu				
1281	1286	1291	1296	
att gcc tcc cta gag gag caa ctg aag ctg agt ggg gaa cat tct gag				3994
Ile Ala Ser Leu Glu Glu Gln Leu Lys Leu Ser Gly Glu His Ser Glu				
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Glu Ser Leu His Gln Leu Phe Glu Gly Glu Ser Glu Thr Glu Ser Phe				
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Tyr Gly Phe Glu Glu Ala Asp Leu Asp Leu Met Glu Ile *				
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Glu Ile *				
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tcc	atc	cca	gta	ttt	gac	ctc	cag	gat	ggt	gga	cgg	aaa	ata	tgt	cca	1114
Ser	Ile	Pro	Val	Phe	Asp	Leu	Gln	Asp	Gly	Gly	Arg	Lys	Ile	Cys	Pro	
337					342					347					352	
cga	tgt	aat	gct	caa	ttt	cgt	gtt	act	gaa	gct	ttg	aga	ggt	cac	atg	1162
Arg	Cys	Asn	Ala	Gln	Phe	Arg	Val	Thr	Glu	Ala	Leu	Arg	Gly	His	Met	
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Cys	Tyr	Cys	Cys	Pro	Glu	Met	Val	Glu	Tyr	Gln	Lys	Lys	Gly	Lys	Ser	
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ctg	gat	tca	gaa	ccc	agt	gtc	cca	tca	gca	gca	aag	ccc	cca	tcc	cct	1258
Leu	Asp	Ser	Glu	Pro	Ser	Val	Pro	Ser	Ala	Ala	Lys	Pro	Pro	Ser	Pro	
385					390					395					400	
gag	aaa	aca	gct	cct	gtt	gct	tcc	aca	ccc	tct	tct	aca	cct	att	cct	1306
Glu	Lys	Thr	Ala	Pro	Val	Ala	Ser	Thr	Pro	Ser	Ser	Thr	Pro	Ile	Pro	
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gct	ctg	tca	ccg	cct	acc	aaa	gta	cca	gaa	cca	aat	gag	aac	gtg	ggc	1354
Ala	Leu	Ser	Pro	Pro	Thr	Lys	Val	Pro	Glu	Pro	Asn	Glu	Asn	Val	Gly	
417					422					427					432	
gat	gcc	gtc	cag	acc	aaa	ctc	att	atg	ctt	gta	gat	gac	ttc	tac	tat	1402
Asp	Ala	Val	Gln	Thr	Lys	Leu	Ile	Met	Leu	Val	Asp	Asp	Phe	Tyr	Tyr	
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gga	cgg	gat	ggt	ggc	aaa	gta	gcc	cag	ctc	aca	aat	ttc	cct	aag	gtc	1450
Gly	Arg	Asp	Gly	Gly	Lys	Val	Ala	Gln	Leu	Thr	Asn	Phe	Pro	Lys	Val	
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gcc	aca	tct	ttc	cga	tgc	cca	cat	tgt	acc	aaa	agg	cta	aaa	aac	aat	1498
Ala	Thr	Ser	Phe	Arg	Cys	Pro	His	Cys	Thr	Lys	Arg	Leu	Lys	Asn	Asn	
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Ile	Arg	Phe	Met	Asn	His	Met	Lys	His	His	Val	Glu	Leu	Asp	Gln	Gln	
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aac	ggt	gag	gta	gat	ggt	cac	act	atc	tgc	cag	cac	tgt	tac	cgc	cag	1594
Asn	Gly	Glu	Val	Asp	Gly	His	Thr	Ile	Cys	Gln	His	Cys	Tyr	Arg	Gln	
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Phe	Ser	Thr	Pro	Phe	Gln	Leu	Gln	Cys	His	Leu	Glu	Asn	Val	His	Ser	
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Pro	Tyr	Glu	Ser	Thr	Thr	Lys	Cys	Lys	Ile	Cys	Glu	Trp	Ala	Phe	Glu	

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Ser Glu Pro Leu Phe	Leu Gln His Met Lys	Asp Thr His Lys Pro	Gly	
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gag atg cct tat gtt	tgc cag gtg tgt caa	tat cgc tcc tca ctc	tac	1786
Glu Met Pro Tyr Val	Cys Gln Val Cys Gln	Tyr Arg Ser Ser Leu	Tyr	
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tct gag gta gat gtc	cat ttt cgg atg atc	cat gag gat acc cgg	cat	1834
Ser Glu Val Asp Val	His Phe Arg Met Ile	His Glu Asp Thr Arg	His	
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ctg ctc tgc cct tat	tgc ctg aag gtc ttc	aaa aat ggc aat gca	ttc	1882
Leu Leu Cys Pro Tyr	Cys Leu Lys Val Phe	Lys Asn Gly Asn Ala	Phe	
593	598	603	608	
caa cag cat tac atg	agg cac cag aag aga	aat gtt tat cac tgc	aac	1930
Gln Gln His Tyr Met	Arg His Gln Lys Arg	Asn Val Tyr His Cys	Asn	
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Lys Cys Arg Leu Gln	Phe Leu Phe Ala Lys	Asp Lys Ile Glu His	Lys	
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aaa cca ggc acc aag	gtg aca atc cgg gct	tcc cga ggg cag cca	cga	2074
Lys Pro Gly Thr Lys	Val Thr Ile Arg Ala	Ser Arg Gly Gln Pro	Arg	
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Thr Val Pro Val Ser	Ser Asn Asp Thr Pro	Pro Ser Ala Leu Gln	Glu	
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Ala Ala Pro Leu Thr	Ser Ser Met Asp Pro	Leu Pro Val Phe Leu	Tyr	
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ccc cct gtc cag cgc	agc atc cag aag aga	gct gtt agg aaa atg	agt	2218
Pro Pro Val Gln Arg	Ser Ile Gln Lys Arg	Ala Val Arg Lys Met	Ser	
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Val Met Gly Arg Gln	Thr Cys Leu Glu Cys	Ser Phe Glu Ile Pro	Asp	
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ttc cct aat cat ttc	cct act tac gta cac	tgc tct ctg tgt cgc	tat	2314
Phe Pro Asn His Phe	Pro Thr Tyr Val His	Cys Ser Leu Cys Arg	Tyr	
737	742	747	752	
agc acc tgc tgt tct	cga gct tat gcc aac	cac atg atc aac aat	cat	2362
Ser Thr Cys Cys Ser	Arg Ala Tyr Ala Asn	His Met Ile Asn Asn	His	
753	758	763	768	

gtt cca cgg aag agc ccc aag tat ttg gct ttg ttt aaa aat tct gtg	2410
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Ser Gly Ile Lys Leu Ala Cys Thr Ser Cys Thr Phe Val Thr Ser Val	
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Gly Asp Ala Met Ala Lys His Leu Val Phe Asn Pro Ser His Arg Ser	
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Gly Gln Thr Arg Asp Arg Val His Asp Arg Asn Val Lys Asn Met Tyr	
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cct cct cct tcc ttc ccc act aac aaa gct gcc act gtg aaa tct gcg	2650
Pro Pro Pro Ser Phe Pro Thr Asn Lys Ala Ala Thr Val Lys Ser Ala	
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Ala Leu Pro Ser Pro Ala Ser Thr Ala Thr Pro Pro Pro Thr Pro Thr	
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Cys Leu Asn Val Asp Asp Gln Asp Glu Gly Ser Pro Val Thr Gln Glu	
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Pro Glu Leu Ala Ser Gly Gly Gly Gly Ser Gly Gly Val Gly Lys Lys	
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Cys Asn Thr Glu Gln Ala Ala Glu His Phe Arg Asn Pro Gln Arg Arg	
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Val Leu Thr Gln Arg Glu Gln Gln Leu Pro Val Asn Glu Glu Thr Leu	
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Phe Gln Lys Ala Thr Lys Ile Gly Arg Ser Leu Glu Gly Gly Phe Lys	
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Ile Ser Tyr Glu Trp Ala Val Arg Phe Met Leu Arg His His Leu Thr	
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Pro His Ala Arg Arg Ala Val Ala His Thr Leu Pro Lys Asp Val Ala	
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Glu Asn Ala Gly Leu Phe Ile Asp Phe Val Gln Arg Gln Ile His Asn	
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Gln Asp Leu Pro Leu Ser Met Ile Val Ala Ile Asp Glu Ile Ser Leu	
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Phe Leu Asp Thr Glu Val Leu Ser Ser Asp Asp Arg Lys Glu Asn Ala	
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Leu Gln Thr Val Gly Thr Gly Glu Pro Trp Cys Asp Val Val Leu Ala	
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Ile Leu Ala Asp Gly Thr Val Leu Pro Thr Leu Val Phe Tyr Arg Gly	
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Phe Leu His Lys Lys Trp Lys Glu Gln Ala Arg Glu Met Ala Asp Thr	
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Ala Cys Asp Ser Asp Val Leu Leu Gln Leu Val Leu Val Trp Leu Gly	
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Glu Val Leu Gly Val Ile Gly Asp Cys Pro Glu Leu Val Gln Arg Ser	
1281	1286 1291 1296
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Phe Leu Val Ala Ser Val Leu Pro Gly Pro Asp Gly Asn Ile Asn Ser	
1297	1302 1307 1312
cct aca aga aat gct gac atg cag gag gag cta att gcc tcc cta gag	4042
Pro Thr Arg Asn Ala Asp Met Gln Glu Glu Leu Ile Ala Ser Leu Glu	
1313	1318 1323 1328
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Glu Gln Leu Lys Leu Ser Gly Glu His Ser Glu Ser Ser Thr Pro Arg	
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ccc aga tca tct cct gaa gag aca att gag cct gaa agt ctt cac cag	4138
Pro Arg Ser Ser Pro Glu Glu Thr Ile Glu Pro Glu Ser Leu His Gln	
1345	1350 1355 1360
ctc ttt gag ggt gaa agt gag acc gag tct ttc tat ggc ttt gaa gaa	4186
Leu Phe Glu Gly Glu Ser Glu Thr Glu Ser Phe Tyr Gly Phe Glu Glu	
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Ala Asp Leu Asp Leu Met Glu Ile *	
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Val Pro Gly Thr Arg Lys Cys Glu Leu Ala Arg Ser Cys Ser Leu Gly
 13              18              23              28

gtc ttt gga gta aga atg gcc ttg gaa ggg atg agc aaa cgg aag aga      144
Val Phe Gly Val Arg Met Ala Leu Glu Gly Met Ser Lys Arg Lys Arg
 29              34              39              44

aag aga agt gtc cag gag gga gag aat cct gac gac ggc gtt cgc ggg      192
Lys Arg Ser Val Gln Glu Gly Glu Asn Pro Asp Asp Gly Val Arg Gly
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agt ccg ccg gaa gac tac agg ctt gga cag gtc gcc agt agc tta ttt      240
Ser Pro Pro Glu Asp Tyr Arg Leu Gly Gln Val Ala Ser Ser Leu Phe
 61              66              71              76

cgc ggc gaa cac cat tcc aga ggt ggc acc ggt cgg ctg gcg tcc ctc      288
Arg Gly Glu His His Ser Arg Gly Gly Thr Gly Arg Leu Ala Ser Leu
 77              82              87              92

ttc agt tct ctg gag ccc cag att caa ccc gtg tac gtg cct gtg cct      336
Phe Ser Ser Leu Glu Pro Gln Ile Gln Pro Val Tyr Val Pro Val Pro
 93              98              103              108

aaa caa acc atc aaa aaa acg aaa cgg aat gag gag gaa gaa agt aca      384
Lys Gln Thr Ile Lys Lys Thr Lys Arg Asn Glu Glu Glu Glu Ser Thr
109              114              119              124

tcc cag att gaa aga cca ctt tcg caa gaa cct gcc aaa aaa gtg aaa      432
Ser Gln Ile Glu Arg Pro Leu Ser Gln Glu Pro Ala Lys Lys Val Lys
125              130              135              140

gcg aag aag aaa cac act aac gca gaa aaa aag ttg gca gac agg gaa      480
Ala Lys Lys Lys His Thr Asn Ala Glu Lys Lys Leu Ala Asp Arg Glu
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Ser Ala Leu Ala Ser Ala Asp Leu Glu Glu Glu Ile His Gln Lys Gln	
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Gly Gln Lys Arg Lys Asn Ser Gln Pro Gly Val Lys Val Ala Asp Arg	
173 178 183 188	
aaa ata ctt gat gac aca gaa gac aca gtt gtc agt caa aga aag aaa	624
Lys Ile Leu Asp Asp Thr Glu Asp Thr Val Ser Gln Arg Lys Lys	
189 194 199 204	
att caa atc aac caa gaa gaa gag aga tta aag aat gag aga act gtg	672
Ile Gln Ile Asn Gln Glu Glu Glu Arg Leu Lys Asn Glu Arg Thr Val	
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Lys Ile His Pro Asp Gln Lys Asn Ile Asn Ala Tyr Val Val Phe Lys	
269 274 279 284	
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Glu Ser Ala Ile Glu Lys His Phe Leu Asp Cys Gly Ser Ile Met Ala	
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Tyr Val Leu Phe Glu Asn Thr Asp Ser Val His Leu Ala Leu Lys Leu	
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Val Ser Lys Pro Lys Gln Gly Leu Asn Phe Thr Ser Lys Thr Ala Glu	
413 418 423 428	
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Gly His Pro Lys Ser Leu Phe Ile Gly Glu Lys Ala Val Leu Leu Lys	
429 434 439 444	
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Thr Lys Lys Lys Gly Gln Lys Lys Ser Gly Arg Pro Lys Lys Gln Arg	
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Met Trp Asn Met Leu Ile Val	
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Gly His Val Ser Ile Ile Leu Leu Gly Ala Thr Gly Asp Leu Ala Lys	
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Lys Tyr Leu Trp Gln Gly Leu Phe Gln Leu Tyr Leu Asp Glu Ala Gly	
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Lys Asp Met Ala Pro Ser His Cys Ala Glu His Lys Asp Gln Phe Leu	
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ctg gcc agc atg gtg gcc ggc gtg gtc tct gtc ggg ctg gga ggg ccc Leu Ala Ser Met Val Ala Gly Val Val Ser Val Gly Leu Gly Gly Pro 108 113 118 123	566
gtg gac ctc atc aag atc cgg ttg cag atg cag aca caa ccg ttt cgg Val Asp Leu Ile Lys Ile Arg Leu Gln Met Gln Thr Gln Pro Phe Arg 124 129 134 139	614
gac gcc aac ctc ggt ttg aag tcc agg gca gtg gct cct gca gag cag Asp Ala Asn Leu Gly Leu Lys Ser Arg Ala Val Ala Pro Ala Glu Gln 140 145 150 155	662
cca gca tac cag ggg cca gtg cac tgc att aca acc att gtg agg aat Pro Ala Tyr Gln Gly Pro Val His Cys Ile Thr Thr Ile Val Arg Asn 156 161 166 171	710
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aac aaa tat aaa ggt gtc ctg gac tgt atc tcc cag agt tac cag aag				998
Asn Lys Tyr Lys Gly Val Leu Asp Cys Ile Ser Gln Ser Tyr Gln Lys				
252	257	262	267	
gaa ggt ctt aaa gtg ttt ttc aga ggc atc act gtg aac gcg gtg cgg				1046
Glu Gly Leu Lys Val Phe Phe Arg Gly Ile Thr Val Asn Ala Val Arg				
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ggc ttc ccc atg agt gcg gcc atg ttc ctt ggg tac gag ctg tcg ctg				1094
Gly Phe Pro Met Ser Ala Ala Met Phe Leu Gly Tyr Glu Leu Ser Leu				
284	289	294	299	
cag gct atc cgc ggg gac cac gca gtg acg agc cca taa gcgccaggtc				1143
Gln Ala Ile Arg Gly Asp His Ala Val Thr Ser Pro *				
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gcagacgcag tgctgagcac acagctaccg gacaaagagt gacgcccgga gctggagtt	239
atg gcg gct acg gag ccg atc ttg gcg gcc act ggg agt ccc gcg gcg	287
Met Ala Ala Thr Glu Pro Ile Leu Ala Ala Thr Gly Ser Pro Ala Ala	
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Val Pro Pro Glu Lys Leu Glu Gly Ala Gly Ser Ser Ser Ala Pro Glu	
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cgt aac tgt gtg ggc tcc tcg ctg cca gag gcc tca ccg cct gcc cct	383
Arg Asn Cys Val Gly Ser Ser Leu Pro Glu Ala Ser Pro Pro Ala Pro	
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gag cct tcc agt ccc aac gcc gcg gtc cct gaa gcc atc cct acg ccc	431
Glu Pro Ser Ser Pro Asn Ala Ala Val Pro Glu Ala Ile Pro Thr Pro	
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Arg Ala Ala Ala Ser Ala Ala Leu Glu Leu Pro Leu Gly Pro Ala Pro	
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Val Ser Val Ala Pro Gln Ala Glu Ala Glu Ala Arg Ser Thr Pro Gly	
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ccc gcc ggc tct aga ctc ggt ccc gag acg ttc cgc cag cgt ttc cgg	575
Pro Ala Gly Ser Arg Leu Gly Pro Glu Thr Phe Arg Gln Arg Phe Arg	
97 102 107 112	
cag ttc cgc tac cag gat gcg gcg ggt ccc cgg gag gct ttc cgg cag	623
Gln Phe Arg Tyr Gln Asp Ala Ala Gly Pro Arg Glu Ala Phe Arg Gln	
113 118 123 128	
ctg cgg gag ctg tcc cgc cag tgg ctg cgg cct gac atc cgc acc aag	671
Leu Arg Glu Leu Ser Arg Gln Trp Leu Arg Pro Asp Ile Arg Thr Lys	
129 134 139 144	
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Glu Gln Ile Val Glu Met Leu Val Gln Glu Gln Leu Leu Ala Ile Leu	
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ccc gag gcg gct cgg gcc cgg cgg atc cgc cgc cgc acg gat gtg cgc	767
Pro Glu Ala Ala Arg Ala Arg Arg Ile Arg Arg Arg Thr Asp Val Arg	
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Ile Thr Gly *	
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Gly Lys Lys Lys Ala Lys Ser Lys Glu Thr Ala Gly Leu Val Glu Gly		
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gag ccg acg ggc gcg ggc ggc ggg agc ctc tca gcg tcc cgg gct ccc		148
Glu Pro Thr Gly Ala Gly Gly Gly Ser Leu Ser Ala Ser Arg Ala Pro		
23 28 33 38		
gca cgc agg ctg gtc ttc cac gcg cag ctg gcg cac ggt agt gcc acg		196
Ala Arg Arg Leu Val Phe His Ala Gln Leu Ala His Gly Ser Ala Thr		
39 44 49 54		
ggc cga gtg gag ggc ttc tcc agc atc cag gag ctc tac gcc cag atc		244
Gly Arg Val Glu Gly Phe Ser Ser Ile Gln Glu Leu Tyr Ala Gln Ile		
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Ala Gly Ala Phe Glu Ile Ser Pro Ser Glu Ile Leu Tyr Cys Thr Leu		
71 76 81 86		
aac aca cct aaa att gac atg gaa aga ctc tta gga gga caa cta gga		340
Asn Thr Pro Lys Ile Asp Met Glu Arg Leu Leu Gly Gly Gln Leu Gly		
87 92 97 102		
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Leu Glu Asp Phe Ile Phe Ala His Val Lys Gly Ile Glu Lys Glu Val		
103 108 113 118		
aat gtg tat aaa tct gag gat tca ctt ggt ctc acc att aca gat aat		436
Asn Val Tyr Lys Ser Glu Asp Ser Leu Gly Leu Thr Ile Thr Asp Asn		
119 124 129 134		
ggt gtt ggc tat gct ttt ata aag aga att aaa gat ggt ggt gtt att		484
Gly Val Gly Tyr Ala Phe Ile Lys Arg Ile Lys Asp Gly Gly Val Ile		
135 140 145 150		
gac tca gtt aaa aca atc tgt gtt ggg gat cat att gaa tcc ata aat		532
Asp Ser Val Lys Thr Ile Cys Val Gly Asp His Ile Glu Ser Ile Asn		
151 156 161 166		
gga gaa aat att gtt ggg tgg cgt cac tat gat gtt gct aag aag tta		580
Gly Glu Asn Ile Val Gly Trp Arg His Tyr Asp Val Ala Lys Lys Leu		
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Lys Glu Leu Lys Lys Glu Glu Leu Phe Thr Met Lys Leu Ile Glu Pro		
183 188 193 198		
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Lys Lys Ala Phe Glu Ile Glu Leu Arg Ser Lys Ala Gly/Lys Ser Ser		
199 204 209 214		
gga gaa aaa att ggt tgt gga agg gca aca ctt cgc ctg aga tca aaa		724

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Pro Leu Ala Leu Pro Leu Asn Val Ser Glu Tyr Cys Val Pro Arg Gly	
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Asn Arg Arg Arg Phe Arg Val Arg Gln Pro Ile Leu Gln Tyr Arg Trp	
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Asp Ile Met His Arg Leu Gly Glu Pro Gln Ala Arg Met Arg Glu Glu	
68 73 78 83	
aat atg gaa agg att ggg gag gag gtg aga cag ctg atg gaa aag ctg	522
Asn Met Glu Arg Ile Gly Glu Glu Val Arg Gln Leu Met Glu Lys Leu	
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Arg Glu Lys Gln Leu Ser His Ser Leu Arg Ala Val Ser Thr Asp Pro	
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Pro His His Asp His His Asp Glu Phe Cys Leu Met Pro *	
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cctttgtcgt aaacgttttg atgttaccta tttcttgtag gtctcctatt accagcttct	739
aaatgaatgt tgtttttgac ccagtttgta agtttctgtc agcaggagag ttttacctat	799
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caagctcagc acctgggagc tacttttagcc ctttaccggt tagttaaagg gcagtcagtt	360
catcagttac ttctctccac ttaccgagat gtttggtctgg agtggagtga tgcagaaaag	420
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Met Glu Thr Asn Lys Pro Arg Asp Leu Phe	
1 5	
att gcc aaa ctt ctg aat aaa ctg aaa cag cag caa ³ cag cag caa caa	519
Ile Ala Lys Leu Leu Asn Lys Leu Lys Gln Gln Gln Gln Gln Gln	
11 16 21 26	
cag cat tct gaa aat aag aga gaa aac tct gaa gat ccc gag gaa tct	567
Gln His Ser Glu Asn Lys Arg Glu Asn Ser Glu Asp Pro Glu Glu Ser	
27 32 37 42	
tgg gaa aat tta gtt tct gat gag gat ttt tct gca ctg tcc ttg gaa	615
Trp Glu Asn Leu Val Ser Asp Glu Asp Phe Ser Ala Leu Ser Leu Glu	
43 48 53 58	
tca gca aat gtg gaa gat ttg gaa cct gtt aga aac ctc ttt aga aag	663
Ser Ala Asn Val Glu Asp Leu Glu Pro Val Arg Asn Leu Phe Arg Lys	
59 64 69 74	
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Leu Gln Ser Thr Pro Lys Tyr Gln Lys Leu Leu Lys Glu Arg Gln Gln	
75 80 85 90	
cta cct gta ttt aaa cat cgg gac tca att gtt gaa act ctt aaa agg	759
Leu Pro Val Phe Lys His Arg Asp Ser Ile Val Glu Thr Leu Lys Arg	
91 96 101 106	
cat cgg gta gtg gtt gtg gca ggt gaa aca ggg agt ggt aaa agt act	807
His Arg Val Val Val Val Ala Gly Glu Thr Gly Ser Gly Lys Ser Thr	
107 112 117 122	
cag gta cca cat ttt cta ttg gaa gat ttg ctt cta aat gag tgg gaa	855
Gln Val Pro His Phe Leu Leu Glu Asp Leu Leu Leu Asn Glu Trp Glu	
123 128 133 138	
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Ala Ser Lys Cys Asn Ile Val Cys Thr Gln Pro Arg Arg Ile Ser Ala	
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Val Ser Leu Ala Asn Arg Val Cys Asp Glu Leu Gly Cys Glu Asn Gly	
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187 192 197 202	
cta agg aaa ctt caa gaa gat ggt ctt cta agt aat gtg tct cat gtt	1095
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203 208 213 218	
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Ile Val Asp Glu Val His Glu Arg Ser Val Gln Ser Asp Phe Leu Leu	
219 224 229 234	
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Ile Ile Leu Lys Glu Ile Leu Gln Lys Arg Ser Asp Leu His Leu Ile	
235 240 245 250	
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Leu Met Ser Ala Thr Val Asp Ser Glu Lys Phe Ser Thr Tyr Phe Thr	
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His Cys Pro Ile Leu Arg Ile Ser Gly Arg Ser Tyr Pro Val Glu Val	
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Phe His Leu Glu Asp Ile Ile Glu Glu Thr Gly Phe Val Leu Glu Lys	
283 288 293 298	
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Asp Ser Glu Tyr Cys Gln Lys Phe Leu Glu Glu Glu Glu Val Thr	
299 304 309 314	
att aat gtt aca agc aaa gca ggg gga ata aaa aaa tat cag gaa tac	1431
Ile Asn Val Thr Ser Lys Ala Gly Gly Ile Lys Lys Tyr Gln Glu Tyr	
315 320 325 330	
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331 336 341 346	
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Gly Leu Ala His Ile Gln Gln Leu Tyr Asp Leu Leu Ser Asn Asp Arg	
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Arg Phe Tyr Ser Glu Arg Tyr Lys Val Ile Ala Leu His Ser Ile Leu	
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Ser Thr Gln Asp Gln Ala Ala Ala Phe Thr Leu Pro Pro Pro Gly Val	
427 432 437 442	
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Arg Lys Ile Val Leu Ala Thr Asn Ile Ala Glu Thr Gly Ile Thr Ile	
443 448 453 458	
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Pro Asp Val Val Phe Val Ile Asp Thr Gly Arg Thr Lys Glu Asn Lys	
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Lys Ala Ser Ala Leu Gln Arg Gln Gly Arg Ala Gly Arg Val Arg Asp	
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Asp Tyr Ser Val Pro Glu Ile Leu Arg Val Pro Leu Glu Glu Leu Cys	
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539 544 549 554	
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Gly Arg Lys Asp Glu Ala Asp Leu Ala Lys Ser Ala Leu Ala Met Ala	

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Glu Leu Ile Lys Leu Val Lys Ala Ala Gly Phe Ser Ser Ser Thr Thr				
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Ser Thr Ser Trp Glu Gly Asn Arg Ala Ser Gln Thr Leu Ser Phe Gln				
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Lys Ile Ala Val Ile Phe Lys Gln Leu Arg Val Leu Ile Asp Ser Val				
843	848	853	858	
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Leu Arg Lys Lys Leu Glu Asn Pro Lys Met Ser Leu Glu Asn Asp Lys				
859	864	869	874	

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aaagggtggtg ggaaaaaagc acatacttta aacatgtata attttctagt tccttttttaa 3291

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 Lys Val Met Ser Val Gly Asp Arg Thr Val Thr Leu Gly Ile Trp Asp
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aca gca ggc tct gag cgc tat gag gcc atg agt aga atc tac tat cgg 361
 Thr Ala Gly Ser Glu Arg Tyr Glu Ala Met Ser Arg Ile Tyr Tyr Arg
 64 69 74 79

ggg gcc aag gct gcc atc gtc tgc tat gac ctc aca gac agc agc agc 409
 Gly Ala Lys Ala Ala Ile Val Cys Tyr Asp Leu Thr Asp Ser/Ser Ser
 80 85 90 95

ttt gag cga gca aag ttc tgg gtg aag gaa ctg cgc agc cta gag gag 457

Phe	Glu	Arg	Ala	Lys	Phe	Trp	Val	Lys	Glu	Leu	Arg	Ser	Leu	Glu	Glu		
96					101					106					111		
ggc	tgc	caa	atc	tac	tta	tgt	ggc	acc	aag	agt	gac	ctg	ctg	gaa	gaa	505	
Gly	Cys	Gln	Ile	Tyr	Leu	Cys	Gly	Thr	Lys	Ser	Asp	Leu	Leu	Glu	Glu		
112					117					122					127		
gac	cgg	agg	cgt	cga	cgt	gtg	gac	ttc	cac	gac	gtc	cag	gac	tat	gca	553	
Asp	Arg	Arg	Arg	Arg	Arg	Val	Asp	Phe	His	Asp	Val	Gln	Asp	Tyr	Ala		
128					133					138					143		
gac	aat	atc	aaa	gct	cag	ctc	ttt	gaa	aca	tcc	agc	aag	aca	ggc	cag	601	
Asp	Asn	Ile	Lys	Ala	Gln	Leu	Phe	Glu	Thr	Ser	Ser	Lys	Thr	Gly	Gln		
144					149					154					159		
agt	gtg	gac	gag	ctc	ttc	cag	aaa	gtg	gca	gag	gat	tac	gtc	agt	gtg	649	
Ser	Val	Asp	Glu	Leu	Phe	Gln	Lys	Val	Ala	Glu	Asp	Tyr	Val	Ser	Val		
160					165					170					175		
gct	gcc	ttc	cag	gtg	atg	aca	gag	gac	aag	ggc	gtg	gat	ctg	ggc	cag	697	
Ala	Ala	Phe	Gln	Val	Met	Thr	Glu	Asp	Lys	Gly	Val	Asp	Leu	Gly	Gln		
176					181					186					191		
aag	cca	aac	ccc	tac	ttc	tac	agc	tgt	tgt	cat	cac	tga	gtcagcactc			746	
Lys	Pro	Asn	Pro	Tyr	Phe	Tyr	Ser	Cys	Cys	His	His	*					
192					197					202							
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tgtgctggcc	catggaacgg	agacagcatt	gggctgactg	tgggcatgag	gagggataag											926	
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		Met	Asp	Leu	Ser	Glu	Leu	Glu	Arg	Asp	Asn	Thr	Gly				
		1				5						10					
cgc	tgt	cgc	ctg	agt	tcg	cct	gtg	ccc	gcg	gtg	tgc	cgc	aag	gag	cct	216	

Arg	Cys	Arg	Leu	Ser	Ser	Pro	Val	Pro	Ala	Val	Cys	Arg	Lys	Glu	Pro	
13					18					23					28	
tgc	gtc	ctg	ggc	gtc	gat	gag	gcg	ggc	agg	ggc	ccc	gtg	ctg	ggc	ccc	264
Cys	Val	Leu	Gly	Val	Asp	Glu	Ala	Gly	Arg	Gly	Pro	Val	Leu	Gly	Pro	
29					34					39					44	
atg	gtc	tac	gcc	atc	tgt	tat	tgt	ccc	ctg	cct	cgc	ctg	gca	gat	ctg	312
Met	Val	Tyr	Ala	Ile	Cys	Tyr	Cys	Pro	Leu	Pro	Arg	Leu	Ala	Asp	Leu	
45					50					55					60	
gag	gcg	ctg	aaa	gtg	gca	gac	tca	aag	acc	cta	ttg	gag	agc	gag	cgg	360
Glu	Ala	Leu	Lys	Val	Ala	Asp	Ser	Lys	Thr	Leu	Leu	Glu	Ser	Glu	Arg	
61					66					71					76	
gaa	agg	ctg	ttt	gcg	aaa	atg	gag	gac	acg	gac	ttt	gtc	ggc	tgg	gcg	408
Glu	Arg	Leu	Phe	Ala	Lys	Met	Glu	Asp	Thr	Asp	Phe	Val	Gly	Trp	Ala	
77					82					87					92	
ctg	gat	gtg	ctg	tct	cca	aac	ctc	atc	tct	acc	agc	atg	ctt	ggg	cgg	456
Leu	Asp	Val	Leu	Ser	Pro	Asn	Leu	Ile	Ser	Thr	Ser	Met	Leu	Gly	Arg	
93					98					103					108	
gtc	aaa	tac	aac	ctg	aac	tcc	ctg	tca	cat	gat	aca	gcc	act	ggg	ctt	504
Val	Lys	Tyr	Asn	Leu	Asn	Ser	Leu	Ser	His	Asp	Thr	Ala	Thr	Gly	Leu	
109					114					119					124	
ata	cag	tat	gca	ttg	gac	cag	ggc	gtg	aac	gtc	acc	cag	gta	ttc	gtg	552
Ile	Gln	Tyr	Ala	Leu	Asp	Gln	Gly	Val	Asn	Val	Thr	Gln	Val	Phe	Val	
125					130					135					140	
gac	acc	gta	ggg	atg	cca	gag	aca	tac	cag	gcg	cgg	ctg	cag	caa	agt	600
Asp	Thr	Val	Gly	Met	Pro	Glu	Thr	Tyr	Gln	Ala	Arg	Leu	Gln	Gln	Ser	
141					146					151					156	
ttt	ccc	ggg	att	gag	gtg	acg	gtc	aag	gcc	aaa	gca	gat	gcc	ctc	tac	648
Phe	Pro	Gly	Ile	Glu	Val	Thr	Val	Lys	Ala	Lys	Ala	Asp	Ala	Leu	Tyr	
157					162					167					172	
ccg	gtg	gtt	agt	gct	gcc	agc	atc	tgt	gcc	aag	gtg	gcc	cgg	gac	cag	696
Pro	Val	Val	Ser	Ala	Ala	Ser	Ile	Cys	Ala	Lys	Val	Ala	Arg	Asp	Gln	
173					178					183					188	
gcc	gtg	aag	aaa	tgg	cag	ttc	gtg	gag	aaa	ctg	cag	gac	ttg	gat	act	744
Ala	Val	Lys	Lys	Trp	Gln	Phe	Val	Glu	Lys	Leu	Gln	Asp	Leu	Asp	Thr	
189					194					199					204	
gat	tat	ggc	tca	ggc	tac	ccc	aat	gat	ccc	aag	aca	aaa	gcg	tgg	ttg	792
Asp	Tyr	Gly	Ser	Gly	Tyr	Pro	Asn	Asp	Pro	Lys	Thr	Lys	Ala	Trp	Leu	
205					210					215					220	
aag	gag	cac	gtg	gag	cct	gtg	ttc	ggc	ttc	ccc	cag	ttt	gtc	cgg	ttc	840
Lys	Glu	His	Val	Glu	Pro	Val	Phe	Gly	Phe	Pro	Gln	Phe	Val	Arg	Phe	
221					226					231					236	
agc	tgg	cgc	acg	gcc	cag	acc	atc	ctg	gag	aaa	gag	gcg	gaa	gat	gtt	888
Ser	Trp	Arg	Thr	Ala	Gln	Thr	Ile	Leu	Glu	Lys	Glu	Ala	Glu	Asp	Val	

237	242	247	252	
ata tgg gag gac tca gca tcc gag aat cag gag gga ctc agg aag atc				936
Ile Trp Glu Asp Ser Ala Ser Glu Asn Gln Glu Gly Leu Arg Lys Ile				
253	258	263	268	
aca tcc tac ttc ctc aat gaa ggg tcc caa gcc cgt ccc cgt tct tcc				984
Thr Ser Tyr Phe Leu Asn Glu Gly Ser Gln Ala Arg Pro Arg Ser Ser				
269	274	279	284	
cac cga tat ttc ctg gaa cgc ggc ctg gag tca gca acc agc ctc tag				1032
His Arg Tyr Phe Leu Glu Arg Gly Leu Glu Ser Ala Thr Ser Leu *				
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	Met Ala His Val Gly Ser Arg Lys Arg			
	1 5			
tcg agg agt cgc agc cgg tcc cgg gga cgg ggg tcg gaa aag aga aag				158
Ser Arg Ser Arg Ser Arg Ser Arg Gly Arg Gly Ser Glu Lys Arg Lys				
10 15 20 25				
aag aag agc agg aaa gac acc tcg agg aac tgc tcg gcc tcc aca tcc				206
Lys Lys Ser Arg Lys Asp Thr Ser Arg Asn Cys Ser Ala Ser Thr Ser				
26 31 36 41				
caa ggt cgc aag gcc agc acg gcc cct ggg gcg gag gag aga agc aag				254
Gln Gly Arg Lys Ala Ser Thr Ala Pro Gly Ala Glu Glu Arg Ser Lys				
42 47 52 57				
cag aag gcc cgg agg aga aca aga tcc agc tcc tcc tcc tct tct tcc				302
Gln Lys Ala Arg Arg Arg Thr Arg Ser Ser Ser Ser Ser Ser Ser				
58 63 68 73				
agt tct tct agc tcc tct tct tcc tcc tcg tcc tcc tcc tct tcc tcc				/ 350
Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser				
74 79 84 89				

agt gat ggc cgg aag aag cgg ggg aag tac aag gac aag agg agg aag	398
Ser Asp Gly Arg Lys Lys Arg Gly Lys Tyr Lys Asp Lys Arg Arg Lys	
90 95 100 105	
aag aag aag aag agg aag aag ctg aag aag aag ggc aag gag aag gcg	446
Lys Lys Lys Lys Arg Lys Lys Leu Lys Lys Lys Gly Lys Glu Lys Ala	
106 111 116 121	
gaa gca cag cag gtg gag gct ctg ccg ggc ccc tcg ctg gac cag tgg	494
Glu Ala Gln Gln Val Glu Ala Leu Pro Gly Pro Ser Leu Asp Gln Trp	
122 127 132 137	
cac cga tca gct ggg gag gaa gag gat ggc cca gtc ctg acg gat gag	542
His Arg Ser Ala Gly Glu Glu Glu Asp Gly Pro Val Leu Thr Asp Glu	
138 143 148 153	
cag aag tcc cga atc cag gcc atg aag ccc atg acc aag gag gag tgg	590
Gln Lys Ser Arg Ile Gln Ala Met Lys Pro Met Thr Lys Glu Glu Trp	
154 159 164 169	
gat gcc cgg cag agc atc atc cgc aag gtg gtg gac cct gag acg ggg	638
Asp Ala Arg Gln Ser Ile Ile Arg Lys Val Val Asp Pro Glu Thr Gly	
170 175 180 185	
cgc acc agg ctt att aag gga gat ggc gag gtc cta gag gaa atc gta	686
Arg Thr Arg Leu Ile Lys Gly Asp Gly Glu Val Leu Glu Glu Ile Val	
186 191 196 201	
acc aaa gaa cga cac aga gag atc aac aag gtg ggt gtg gcc cct ctg	734
Thr Lys Glu Arg His Arg Glu Ile Asn Lys Val Gly Val Ala Pro Leu	
202 207 212 217	
cct gcc atc cgc ccc cag ctc tgt ttg tga t gtacccctcc tcctgtgtgc	785
Pro Ala Ile Arg Pro Gln Leu Cys Leu *	
218 223	
tttcttcccc agcaagccac ccgaggggac tgcttgccct tccagatgcg agctgggttg	845
cttccctgag ggccccgcgt ggccaaggcc tgtggacgac gctggcggcc cagcctgggc	905
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gtctctggcc cagcccagtc tcttctcagg ggcaggggggt ggagggttggg gtcaccggcc	1025
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ataaaccccc tccccgcgcc ccatgtgcgc tgtgaccac gccctcgcag tcctttctct	180
ggaatcatcc atgcgccct ggagcaagct ggggcgtctg tgaagggtgcg gcagatccgg	240
gctctagaca gcgac atg cag acc ctg gtc tat gag aac tac aac aag ttc	291
Met Gln Thr Leu Val Tyr Glu Asn Tyr Asn Lys Phe	
1 5 10	
atc tca gcc aca gac acc atc cgg aag atg aag aac gat ttc cgg aag	339
Ile Ser Ala Thr Asp Thr Ile Arg Lys Met Lys Asn Asp Phe Arg Lys	
13 18 23 28	
atg gag gat gag atg gac cgg ctg gcc acc aac atg gca gtg atc acc	387
Met Glu Asp Glu Met Asp Arg Leu Ala Thr Asn Met Ala Val Ile Thr	
29 34 39 44	
gac ttc agc gct cgc atc agc gcc acg ctg cag gac cgc cac gag cgc	435
Asp Phe Ser Ala Arg Ile Ser Ala Thr Leu Gln Asp Arg His Glu Arg	
45 50 55 60	
atc acc aag ctg gca ggg gtc cac gcg ctg ctg cgg aag ctg cag ttc	483
Ile Thr Lys Leu Ala Gly Val His Ala Leu Leu Arg Lys Leu Gln Phe	
61 66 71 76	
ctc ttt gag ctg ccc tcg cgc ctc acc aag tgc gtg gaa ctg ggc gcc	531
Leu Phe Glu Leu Pro Ser Arg Leu Thr Lys Cys Val Glu Leu Gly Ala	
77 82 87 92	
tat ggg cag gcg gtg cgc tac cag ggc cgc gcg cag gcc gtg ctg cag	579
Tyr Gly Gln Ala Val Arg Tyr Gln Gly Arg Ala Gln Ala Val Leu Gln	
93 98 103 108	
cag tac caa cac ctg ccc tcg ttc cgc gcc atc cag gac gac tgc cag	627
Gln Tyr Gln His Leu Pro Ser Phe Arg Ala Ile Gln Asp Asp Cys Gln	
109 114 119 124	
gtc atc acg gcc cgc ctg gcc cag cag ctg cgg cag cgc ttt agg gag	675
Val Ile Thr Ala Arg Leu Ala Gln Gln Leu Arg Gln Arg Phe Arg Glu	
125 130 135 140	
ggc ggc tca ggc gcc ccg gag cag gca gag tgc gtg gag ctg ctg ctg	723
Gly Gly Ser Gly Ala Pro Glu Gln Ala Glu Cys Val Glu Leu Leu Leu	
141 146 151 156	

gcc ctg ggc gag cct gcg gag gag ctg tgc gag gag ttc ctg gcg cac Ala Leu Gly Glu Pro Ala Glu Glu Leu Cys Glu Glu Phe Leu Ala His 157 162 167 172	771
gcc cgc ggc cgg ctg gag aag gag ctg aga aac ctg gag gcc gag ctg Ala Arg Gly Arg Leu Glu Lys Glu Leu Arg Asn Leu Glu Ala Glu Leu 173 178 183 188	819
ggg ccc tca cct ccg gct ccc gac gtg tta gag ttc acc gac cat gga Gly Pro Ser Pro Pro Ala Pro Asp Val Leu Glu Phe Thr Asp His Gly 189 194 199 204	867
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gag ctg ttt gcg gcc cag ggc cca gca ggt gcc gag aag ctg gcg gcc Glu Leu Phe Ala Ala Gln Gly Pro Ala Gly Ala Glu Lys Leu Ala Ala 221 226 231 236	963
ttc gcc cgg cag ctg ggc agc cgc tat ttt gcg ctg gtg gag cgg cgg Phe Ala Arg Gln Leu Gly Ser Arg Tyr Phe Ala Leu Val Glu Arg Arg 237 242 247 252	1011
ctg gcg cag gag cag ggt ggt ggt gac aac tca ctg ctg gtg cgg gcg Leu Ala Gln Glu Gln Gly Gly Gly Asp Asn Ser Leu Leu Val Arg Ala 253 258 263 268	1059
ctg gac cgc ttc cac cgg cgc ttg cgg gct ccc ggg gcc ctg ctg gcc Leu Asp Arg Phe His Arg Arg Leu Arg Ala Pro Gly Ala Leu Leu Ala 269 274 279 284	1107
gct gcc ggg ctc gca gac gct gcc acg gag atc gtg gaa cga gtg gcc Ala Ala Gly Leu Ala Asp Ala Ala Thr Glu Ile Val Glu Arg Val Ala 285 290 295 300	1155
cgc gag cgc ctg ggc cac cac ctg cag ggt ctc cgg gcg gcc ttc ctg Arg Glu Arg Leu Gly His His Leu Gln Gly Leu Arg Ala Ala Phe Leu 301 306 311 316	1203
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ggg aag gag ggc cct ggc ctg gcc gag ttg ctg gcc aat gtg gcc agc Gly Lys Glu Gly Pro Gly Leu Ala Glu Leu Leu Ala Asn Val Ala Ser 333 338 343 348	1299
tcc atc ctg agc cac att aag gcc tct ctg gca gca gtg cac ctt ttc Ser Ile Leu Ser His Ile Lys Ala Ser Leu Ala Ala Val His Leu Phe 349 354 359 364	1347
acc gcc aaa gag gtg tcc ttc tcc aac aag ccc tac ttc cgg ggt gag Thr Ala Lys Glu Val Ser Phe Ser Asn Lys Pro Tyr Phe Arg Gly Glu 365 370 375 380	1395
ttc tgc agt cag ggt gtc cgt gag ggc ctc atc gtg ggc ttc gtc cac	1443

Phe Cys Ser Gln Gly Val Arg Glu Gly Leu Ile Val Gly Phe Val His	
381 386 391 396	
tct atg tgc cag acg gct cag agc ttc tgc gac agc cct ggg gag aag	1491
Ser Met Cys Gln Thr Ala Gln Ser Phe Cys Asp Ser Pro Gly Glu Lys	
397 402 407 412	
ggg ggt gcc aca cca cct gcc ctg ctc ctg ctg ctc tcc cgc ctc tgc	1539
Gly Gly Ala Thr Pro Ala Leu Leu Leu Leu Leu Ser Arg Leu Cys	
413 418 423 428	
ctg gac tac gag acg gcc acc atc tcc tac atc ctc act ctc act gat	1587
Leu Asp Tyr Glu Thr Ala Thr Ile Ser Tyr Ile Leu Thr Leu Thr Asp	
429 434 439 444	
gaa cag ttt ctg gtg cag gat cag ttc cca gtg acg ccc gtg agc acg	1635
Glu Gln Phe Leu Val Gln Asp Gln Phe Pro Val Thr Pro Val Ser Thr	
445 450 455 460	
ctg tgt gca gag gcc agg gaa acg gcg cgg cgg ctg ctg acc cac tac	1683
Leu Cys Ala Glu Ala Arg Glu Thr Ala Arg Arg Leu Leu Thr His Tyr	
461 466 471 476	
gtg aag gtg cag ggc ctg gtc ata tca cag atg ctg cgc aag agc gtg	1731
Val Lys Val Gln Gly Leu Val Ile Ser Gln Met Leu Arg Lys Ser Val	
477 482 487 492	
gag act cgc gac tgg ctc agc act ctg gag ccc cgg aat gtg cgg gcc	1779
Glu Thr Arg Asp Trp Leu Ser Thr Leu Glu Pro Arg Asn Val Arg Ala	
493 498 503 508	
gtc atg aag cgg gtg gtg gag gat acc acc gcc atc gac gtg cag gtg	1827
Val Met Lys Arg Val Val Glu Asp Thr Thr Ala Ile Asp Val Gln Val	
509 514 519 524	
ctg ccc agg ctg gcc ggg gta gcc ctg acg cag gct ggg ggt act gtc	1875
Leu Pro Arg Leu Ala Gly Val Ala Leu Thr Gln Ala Gly Gly Thr Val	
525 530 535 540	
cct tca aga ggg gct ggg gca gca gag gat cac tgg cag tcc ctg cct	1923
Pro Ser Arg Gly Ala Gly Ala Ala Glu Asp His Trp Gln Ser Leu Pro	
541 546 551 556	
gga gga ggg gac atg tgt atc tgg gct tct cac ggg gcc agt tct gta	1971
Gly Gly Gly Asp Met Cys Ile Trp Ala Ser His Gly Ala Ser Ser Val	
557 562 567 572	
gcc agg gcg tcc gtg agg gaa ccc cag ggg aac aag tct cca agg atg	2019
Ala Arg Ala Ser Val Arg Glu Pro Gln Gly Asn Lys Ser Pro Arg Met	
573 578 583 588	
aat acc aaa cgg gct ggg gag tgc cta tgt cca cgg tct tgt tcc ttc	2067
Asn Thr Lys Arg Ala Gly Glu Cys Leu Cys Pro Arg Ser Cys Ser Phe	
589 594 599 604	
tca gcc cag gat tat gac atc ttc gcc cct att tta cct gtg gag aag	2115
Ser Ala Gln Asp Tyr Asp Ile Phe Ala Pro Ile Leu Pro Val Glu Lys	

605	610	615	620	
cag agg ctc agg gtt acc cag gaa gtc agg gca ggg ttg gtg ctg gtg				2163
Gln Arg Leu Arg Val Thr Gln Glu Val Arg Ala Gly Leu Val Leu Val				
621	626	631	636	
ctg aag att aga cct cag acc aac tct tgt atc ctg cct ttg ccc cac				2211
Leu Lys Ile Arg Pro Gln Thr Asn Ser Cys Ile Leu Pro Leu Pro His				
637	642	647	652	
tcc act ggt tct ata aat agc gac cat gta cct act aaa tag cgggccc				2260
Ser Thr Gly Ser Ile Asn Ser Asp His Val Pro Thr Lys *				
653	658	663		
cgcggtgatt accctgtgat ccttgtgatg cttgagtagc tgacttaggg catcctcagc				2320
accgatgggc ttggtggttt cccctgactc gggcctcctt gcagtacctc tttttaccac				2380
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<400> 474

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Met Gly Glu Ala Glu Lys Phe His Tyr Ile Tyr Ser Cys Asp	
1 5 10	
ctg gat atc aac gtc cag ctt aag ata gga agc ttg gaa ggg aag aga	217
Leu Asp Ile Asn Val Gln Leu Lys Ile Gly Ser Leu Glu Gly Lys Arg	
15 / 20 25 30	
gaa caa aag agt tat aaa gct gtc ctg gaa gac cca atg ttg aag ttc	265
Glu Gln Lys Ser Tyr Lys Ala Val Leu Glu Asp Pro Met Leu Lys Phe	

31	36	41	46	
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gtt ttt gca gaa ggg aag cct ttg gcc ttg cca gtg aga aca tcc tac Val Phe Ala Glu Gly Lys Pro Leu Ala Leu Pro Val Arg Thr Ser Tyr 63 68 73 78	361			
aaa gca ttt agt aca aga tgg aac tgg aat gaa tgg ctg aaa cta cca Lys Ala Phe Ser Thr Arg Trp Asn Trp Asn Glu Trp Leu Lys Leu Pro 79 84 89 94	409			
gta aaa tac cct gac ctg ccc agg aat gcc caa gtg gcc ctc acc ata Val Lys Tyr Pro Asp Leu Pro Arg Asn Ala Gln Val Ala Leu Thr Ile 95 100 105 110	457			
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gtt tcg ctc ttt gga aaa tac ggc atg ttt cgc caa ggg atg cat gac Val Ser Leu Phe Gly Lys Tyr Gly Met Phe Arg Gln Gly Met His Asp 127 132 137 142	553			
ttg aaa gtc tgg cct aat gta gaa gca gat gga tca gaa ccc aca aaa Leu Lys Val Trp Pro Asn Val Glu Ala Asp Gly Ser Glu Pro Thr Lys 143 148 153 158	601			
act cct ggc aga aca agt agc act ctc tca gaa gat cag atg agc cgt Thr Pro Gly Arg Thr Ser Ser Thr Leu Ser Glu Asp Gln Met Ser Arg 159 164 169 174	649			
ctt gcc aag ctc acc aaa gct cat cga caa gga cac atg gtg aaa gta Leu Ala Lys Leu Thr Lys Ala His Arg Gln Gly His Met Val Lys Val 175 180 185 190	697			
gat tgg ctg gat aga ttg aca ttt aga gaa ata gaa atg ata aat gag Asp Trp Leu Asp Arg Leu Thr Phe Arg Glu Ile Glu Met Ile Asn Glu 191 196 201 206	745			
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gtt cct gac ccc cag atg tcc ctg gag aat tta gtt gag agc aaa cac Val Pro Asp Pro Gln Met Ser Leu Glu Asn Leu Val Glu Ser Lys His 255 260 265 270	937			

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Pro Lys Thr His Glu Met Tyr Leu Asn Val Met Arg Arg Phe Ser Gln	
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527 532 537 542	
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Ala Ala Gln Gln Thr Phe Val Asp Arg Leu Val His Leu Met Lys Ala	
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gta caa cgc gaa agt gga aat cgt aag aaa aag aat gag aga cta cag	1849
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Phe Lys Thr Glu Asp Gly Gly Lys Tyr Pro Val Ile Phe Lys His Gly	
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Asp Asp Leu Arg Gln Asp Gln Leu Ile Leu Gln Ile Ile Ser Leu Met	
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Lys Val Leu Ala Thr Ser Thr Lys His Gly Phe Met Gln Phe Ile Gln	
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Ala Ala Arg Lys Ser Gln Ile Lys Ala Arg Ile Thr Asp Thr Ile Gly
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Pro Thr Glu Thr Ser Ile Ala Pro Arg Gln Arg Pro Lys Ala Asn Ser
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gct act act gcc act ccc agt gtg ctg acc att caa agt tca gca aca      259
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cct gtt aaa gtc ctt gct cct ggt gaa ttc ggt aac cat aga cca aaa      307
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Gly Ala Leu Arg Pro Gly Asn Gly Pro Glu Ile Leu Leu Gly Gln Gly
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cct cct cag cag ccg cca cag cag cat aga gta ctc cag caa cta cag      403
Pro Pro Gln Gln Pro Pro Gln Gln His Arg Val Leu Gln Gln Leu Gln
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cag gga gat tgg aga tta cag caa ctc cat tta cag cat cgt cat cct      451
Gln Gly Asp Trp Arg Leu Gln Gln Leu His Leu Gln His Arg His Pro
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cac cag cag cag cag cag cag cag cag caa cag caa cag cag cag cag      499
His Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln
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caa cag caa cag cag cag cag cag cag cag cag cag cac cac cac cac      547
Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln His His His His
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His His His His Leu Leu Gln Asp Ala Tyr Met Gln Gln Tyr Gln His
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Val Tyr Gln Pro Gln Pro Ser Ala Ser Gln Tyr Pro Thr Met Met Pro				
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Gln Tyr Gln Gln Ala Phe Phe Gln Gln Gln Met Leu Ala Gln His Gln				
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Pro Ser Gln Gln Gln Ala Ser Pro Glu Tyr Leu Thr Ser Pro Gln Glu				
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Phe Ser Pro Ala Leu Val Ser Tyr Thr Ser Ser Leu Pro Ala Gln Val				
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Gly Thr Ile Met Asp Ser Ser Tyr Ser Ala Asn Arg Ser Val Ala Asp				
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aaa gag gcc att gca aat ttc aca aat cag aag aac atc agc aat cca				931
Lys Glu Ala Ile Ala Asn Phe Thr Asn Gln Lys Asn Ile Ser Asn Pro				
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Ile Asn Gln Glu Asn Gly Thr Ala Asn Pro Ile Lys Asn Gly Lys Thr				
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391	396	401	406	

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Glu Gln Glu Glu Phe Asp Val Phe Thr Lys Ala Pro Phe Ser Lys Lys	
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567 572 577 582	
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Pro Gly Tyr Pro Lys Ser Val Asp Val Phe Gly Ser Thr Pro Phe Gln	
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 Met Ser Asn Ile

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Leu Gln Thr Gln Trp Asp Pro Pro Thr Trp Glu Ser Pro Gly Asp Asp	
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Ala Ser Leu Glu His Glu Ala Glu Met Asp Leu Gly Thr Pro Thr Tyr	
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Ala	Arg	Lys	Leu	Thr	His	Gly	Val	Met	Asn	Lys	Glu	Leu	Lys	Tyr	Cys	
108					113					118					123	
aag aat cct gag gac ctg gag tgc aat gag aat gtg aaa cac aaa acc																554
Lys	Asn	Pro	Glu	Asp	Leu	Glu	Cys	Asn	Glu	Asn	Val	Lys	His	Lys	Thr	
124					129					134					139	
aag gag tac att aag aag tac atg cag aag ttt ggg gct gtt tac aaa																602
Lys	Glu	Tyr	Ile	Lys	Lys	Tyr	Met	Gln	Lys	Phe	Gly	Ala	Val	Tyr	Lys	
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ccc aaa gag gac act gaa tta gag tga ctgtt gggccagggt gggaggatgg																654
Pro	Lys	Glu	Asp	Thr	Glu	Leu	Glu	*								
156					161											
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                                     Met Gly Val Ala
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ctg cca cct ttg tgc tca acg gga cct tgg cca gtt acc cgt cag atc      462
Leu Pro Pro Leu Cys Ser Thr Gly Pro Trp Pro Val Thr Arg Gln Ile
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act gcc agg aca aca tgt ggc gct gtc ccc gcc aag tgt cca ccg tgg      510
Thr Ala Arg Thr Thr Cys Gly Ala Val Pro Ala Lys Cys Pro Pro Trp
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tgt gtg tgc acg aac ccc gct gcc agc cgc ctg act gcc acg gcc acg      558
Cys Val Cys Thr Asn Pro Ala Ala Ser Arg Leu Thr Ala Thr Ala Thr
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Gly Pro Ala Trp Thr Gly Thr Ala Asn Ala Pro Gly Thr Ser Gly Gly
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gtc ccg gct gtg atg agc tgg act gtg gcc cct cta act gca gcc agc      654
Val Pro Ala Val Met Ser Trp Thr Val Ala Pro Leu Thr Ala Ala Ser
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acg gac tgt gca ccg aga ccg gct gcc gct gtg atg ccg gat gga ccg      702
Thr Asp Cys Ala Arg Arg Pro Ala Ala Ala Val Met Pro Asp Gly Pro
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Gly Pro Thr Ala Val Lys *
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actcaaaatt acttacaaat aactggaaa agggattaca gagccacctt ttggtatatt	360
tgtctttaac aaagatactg gagaactgaa tgttaccagc attcttgatc gagaagaaac	420
accatTTTTT ctgctaacag gttacgcttt ggatgcaaga ggaaacaatg tagagaaacc	480
cttagagcta cgcattaagg ttcttgatat caatgacaac gaaccagtgt tcacacagga	540

tgctcttgggt	gggtctgttg	aagagttgag	tcgagcacat	actcttgtg	atg aaa	595
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					1	
atc aat gca aca gat gca gat gag ccc aat acc ctg aat tcg aaa att	643					
Ile Asn Ala Thr Asp Ala Asp Glu Pro Asn Thr Leu Asn Ser Lys Ile						
3 8 13 18						
tcc tat aga atc gta tct ctg gag cct gct tat cct cca gtg ttc tac	691					
Ser Tyr Arg Ile Val Ser Leu Glu Pro Ala Tyr Pro Pro Val Phe Tyr						
19 24 29 34						
cta aat aaa gat aca gga gag att tat aca acc agt gtt acc ttg gac	739					
Leu Asn Lys Asp Thr Gly Glu Ile Tyr Thr Ser Val Thr Leu Asp						
35 40 45 50						
aga gag gaa cac agc agc tac act ttg aca gta gaa gca aga gat ggc	787					
Arg Glu Glu His Ser Ser Tyr Thr Leu Thr Val Glu Ala Arg Asp Gly						
51 56 61 66						
aat gga gaa gtt aca gac aaa cct gta aaa caa gct caa gtt cag att	835					
Asn Gly Glu Val Thr Asp Lys Pro Val Lys Gln Ala Gln Val Gln Ile						
67 72 77 82						
cgt att ttg gat gtc aat gac aat ata cct gta gta gaa aat aaa gtg	883					
Arg Ile Leu Asp Val Asn Asp Asn Ile Pro Val Val Glu Asn Lys Val						
83 88 93 98						
ctt gaa ggg atg gtt gaa gaa aat caa gtc aac gta gaa gtt acg cgc	931					
Leu Glu Gly Met Val Glu Glu Asn Gln Val Asn Val Glu Val Thr Arg						
99 104 109 114						
gta aaa gtg ttc gat gca gat gaa ata ggt tct gat aat tgg ctg gca	979					
Val Lys Val Phe Asp Ala Asp Glu Ile Gly Ser Asp Asn Trp Leu Ala						
115 120 125 130						
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131 136 141 146						
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Thr Asp Ala Gln Thr Asn Glu Gly Ile Val Thr Leu Ile Lys Glu Val						
147 152 157 162						
gat tat gaa gaa atg aag aat ctt gac ttc agt gtt att gtc gct aat	1123					
Asp Tyr Glu Glu Met Lys Asn Leu Asp Phe Ser Val Ile Val Ala Asn						
163 168 173 178						
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Lys Ala Ala Phe His Lys Ser Ile Arg Ser Lys Tyr Lys Pro Thr Pro						
179 184 189 194						
att ccc atc aag gtc aaa gtg aaa aat gtg aaa gaa ggc att cat ttt	1219					
Ile Pro Ile Lys Val Lys Val Lys Asn Val Lys Glu Gly Ile His Phe						
195 200 205 210						
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Lys	Ser	Ser	Val	Ile	Ser	Ile	Tyr	Val	Ser	Glu	Ser	Met	Asp	Arg	Ser		
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Ser	Lys	Gly	Gln	Ile	Ile	Gly	Asn	Phe	Gln	Ala	Phe	Asp	Glu	Asp	Thr		
227					232					237					242		
gga	cta	cca	gcc	cat	gca	aga	tat	gta	aaa	tta	gaa	gat	aga	gat	aat	1363	
Gly	Leu	Pro	Ala	His	Ala	Arg	Tyr	Val	Lys	Leu	Glu	Asp	Arg	Asp	Asn		
243					248					253					258		
tgg	atc	tct	gtg	gat	tct	gtc	aca	tct	gaa	att	aaa	ctt	gca	aaa	ctt	1411	
Trp	Ile	Ser	Val	Asp	Ser	Val	Thr	Ser	Glu	Ile	Lys	Leu	Ala	Lys	Leu		
259					264					269					274		
cct	gat	ttt	gaa	tct	aga	tat	gtt	caa	aat	ggc	aca	tac	act	gta	aag	1459	
Pro	Asp	Phe	Glu	Ser	Arg	Tyr	Val	Gln	Asn	Gly	Thr	Tyr	Thr	Val	Lys		
275					280					285					290		
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Ile	Val	Ala	Ile	Ser	Glu	Asp	Tyr	Pro	Arg	Lys	Thr	Ile	Thr	Gly	Thr		
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Val	Leu	Ile	Asn	Val	Glu	Asp	Ile	Asn	Asp	Asn	Cys	Pro	Thr	Leu	Ile		
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Glu	Pro	Val	Gln	Thr	Ile	Cys	His	Asp	Ala	Glu	Tyr	Val	Asn	Val	Thr		
323					328					333					338		
gca	gag	gac	ctg	gat	gga	cac	cca	aac	agt	ggc	cct	ttc	agt	ttc	tcc	1651	
Ala	Glu	Asp	Leu	Asp	Gly	His	Pro	Asn	Ser	Gly	Pro	Phe	Ser	Phe	Ser		
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Val	Ile	Asp	Lys	Pro	Pro	Gly	Met	Ala	Glu	Lys	Trp	Lys	Ile	Ala	Arg		
355					360					365					370		
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Gln	Glu	Ser	Thr	Ser	Val	Leu	Leu	Gln	Gln	Ser	Glu	Lys	Lys	Leu	Gly		
371					376					381					386		
aga	agt	gaa	att	cag	ttc	ctg	att	tca	gac	aat	cag	ggg	ttt	agt	tgt	1795	
Arg	Ser	Glu	Ile	Gln	Phe	Leu	Ile	Ser	Asp	Asn	Gln	Gly	Phe	Ser	Cys		
387					392					397					402		
cct	gaa	aag	cag	gtc	ctt	aca	ctc	aca	gtt	tgt	gag	tgt	ctg	cat	ggc	1843	
Pro	Glu	Lys	Gln	Val	Leu	Thr	Leu	Thr	Val	Cys	Glu	Cys	Leu	His	Gly		
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agc	ggc	tgc	agg	gaa	gca	cag	cat	gac	tcc	tat	gtg	ggc	ctg	gga	ccc	1891	
Ser	Gly	Cys	Arg	Glu	Ala	Gln	His	Asp	Ser	Tyr	Val	Gly	Leu	Gly	Pro		
419					424					429			/		434		
gca	gca	att	gcg	ctc	atg	att	ttg	gcc	ttt	ctg	ctc	ctg	cta	ttg	gta	1939	
Ala	Ala	Ile	Ala	Leu	Met	Ile	Leu	Ala	Phe	Leu	Leu	Leu	Leu	Leu	Val		

435	440	445	450	
cca ctt tta ctg ctg atg tgc cat tgc gga aag ggc gcc aaa ggc ttt				1987
Pro Leu Leu Leu Leu Met Cys His Cys Gly Lys Gly Ala Lys Gly Phe				
451	456	461	466	
acc ccc ata cct ggc acc ata gag atg ctg cat cct tgg aat aat gaa				2035
Thr Pro Ile Pro Gly Thr Ile Glu Met Leu His Pro Trp Asn Asn Glu				
467	472	477	482	
gga gca cca cct gaa gac aag gtg gtg cca tca ttt ctg cca gtg gat				2083
Gly Ala Pro Pro Glu Asp Lys Val Val Pro Ser Phe Leu Pro Val Asp				
483	488	493	498	
caa ggg ggc agt cta gta gga aga aat gga gta gga ggt atg gcc aag				2131
Gln Gly Gly Ser Leu Val Gly Arg Asn Gly Val Gly Gly Met Ala Lys				
499	504	509	514	
gaa gcc acg atg aaa gga agt agc tct gct tcc att gtc aaa ggg caa				2179
Glu Ala Thr Met Lys Gly Ser Ser Ser Ala Ser Ile Val Lys Gly Gln				
515	520	525	530	
cat gag atg tcc gag atg gat gga agg tgg gaa gaa cac aga agc ctg				2227
His Glu Met Ser Glu Met Asp Gly Arg Trp Glu Glu His Arg Ser Leu				
531	536	541	546	
ctt tct ggt aga gct acc cag ttt aca ggg gcc aca ggc gct atc atg				2275
Leu Ser Gly Arg Ala Thr Gln Phe Thr Gly Ala Thr Gly Ala Ile Met				
547	552	557	562	
acc act gaa acc acg aag acc gca agg gcc aca ggg gct tcc aga gac				2323
Thr Thr Glu Thr Thr Lys Thr Ala Arg Ala Thr Gly Ala Ser Arg Asp				
563	568	573	578	
atg gcc gga gct cag gca gct gct gtt gca ctg aac gaa gaa ttc tta				2371
Met Ala Gly Ala Gln Ala Ala Ala Val Ala Leu Asn Glu Glu Phe Leu				
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Arg Asn Tyr Phe Thr Asp Lys Ala Ala Ser Tyr Thr Glu Glu Asp Glu				
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Asn His Thr Ala Lys Asp Cys Leu Leu Val Tyr Ser Gln Glu Glu Thr				
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gaa tcg ctg aat gct tct att ggt tgt tgc agt ttt att gaa gga gag				2515
Glu Ser Leu Asn Ala Ser Ile Gly Cys Cys Ser Phe Ile Glu Gly Glu				
627	632	637	642	
cta gat gac cgc ttc tta gat gat ttg gga ctt aaa ttc aag aca cta				2563
Leu Asp Asp Arg Phe Leu Asp Asp Leu Gly Leu Lys Phe Lys Thr Leu				
643	648	653	658	
gct gaa gtt tgc ctg ggt caa aaa ata gat ata aat aag gaa att gag				2611
Ala Glu Val Cys Leu Gly Gln Lys Ile Asp Ile Asn Lys Glu Ile Glu				
659	664	669	674	

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Gln	Arg	Gln	Lys	Pro	Ala	Thr	Glu	Thr	Ser	Met	Asn	Thr	Ala	Ser	His	
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tca	ctc	tgt	gag	caa	act	atg	gtt	aat	tca	gag	aat	acc	tac	tcc	tct	2707
Ser	Leu	Cys	Glu	Gln	Thr	Met	Val	Asn	Ser	Glu	Asn	Thr	Tyr	Ser	Ser	
691					696					701					706	
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Gly	Ser	Ser	Phe	Pro	Val	Pro	Lys	Ser	Leu	Gln	Glu	Ala	Asn	Ala	Glu	
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Lys	Val	Thr	Gln	Glu	Ile	Val	Thr	Glu	Arg	Ser	Val	Ser	Ser	Arg	Gln	
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Val	Gln	Pro	Thr	Leu	Ala	Met	Pro	Asn	Ile	Ala	Val	Gly	Gln	Asn	Val	
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Thr	Val	Thr	Glu	Arg	Val	Leu	Ala	Pro	Ala	Ser	Thr	Leu	Gln	Ser	Ser	
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tac	cag	att	ccc	act	gaa	aat	tct	atg	acg	gct	agg	aac	acc	acg	gtg	3283
Tyr	Gln	Ile	Pro	Thr	Glu	Asn	Ser	Met	Thr	Ala	Arg	Asn	Thr	Thr	Val	
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tct gga gct gga gtc cct ggc cct ctg cca gat ttt ggt tta gag gaa	3331
Ser Gly Ala Gly Val Pro Gly Pro Leu Pro Asp Phe Gly Leu Glu Glu	
899 904 909 914	

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Ser Gly His Ser Asn Ser Thr Ile Thr Thr Ser Ser Thr Arg Val Thr	
915 920 925 930	

aag cat agc act gta cag cat tct tac tcc taa acagcagt cagccacaaa	3430
Lys His Ser Thr Val Gln His Ser Tyr Ser *	
931 936 941	

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Arg Asn Leu Asn Leu Phe Lys Leu Phe Arg Leu Val His Lys Leu Gly	
17 22 27 32	

gga ttt gat aat att gaa agt gga gct gtt tgg aaa caa gtc tac caa	144
Gly Phe Asp Asn Ile Glu Ser Gly Ala Val Trp Lys Gln Val Tyr Gln	
33 38 43 48	

gat ctt gga atc cct gtc tta aat tca gct gca gga tac aat gtt aaa	192
Asp Leu Gly Ile Pro Val Leu Asn Ser Ala Ala Gly Tyr Asn Val Lys	
49 54 59 64	

tgt gct tat aaa aaa tac tta tat ggt ttt gag gag tac tgt aga tca	240
Cys Ala Tyr Lys Lys Tyr Leu Tyr Gly Phe Glu Glu Tyr Cys Arg Ser	
65 70 75 80	

ccc aac att gaa ttt cag atg gca ttg cca gag aaa gtt gtt aac aag /	288
Pro Asn Ile Glu Phe Gln Met Ala Leu Pro Glu Lys Val Val Asn Lys	
81 86 91 96	

caa tgt aag gag tgt gaa aat gta aaa gaa ata aaa gtt aag gag gaa	336
Gln Cys Lys Glu Cys Glu Asn Val Lys Glu Ile Lys Val Lys Glu Glu	
97 102 107 112	
aat gaa aca gag atc caa gaa ata aag atg gag gag gag agg aat ata	384
Asn Glu Thr Glu Ile Gln Glu Ile Lys Met Glu Glu Glu Arg Asn Ile	
113 118 123 128	
ata cca aga gaa gaa aag cct att gag gat gaa att gaa aga aaa gaa	432
Ile Pro Arg Glu Glu Lys Pro Ile Glu Asp Glu Ile Glu Arg Lys Glu	
129 134 139 144	
aat att aag ccc tct ctg gga agt aaa aag aat tta tta gaa tct ata	480
Asn Ile Lys Pro Ser Leu Gly Ser Lys Lys Asn Leu Leu Glu Ser Ile	
145 150 155 160	
cct aca cat tct gat cag gaa aaa gaa gtt aac att aaa aaa cca gaa	528
Pro Thr His Ser Asp Gln Glu Lys Glu Val Asn Ile Lys Lys Pro Glu	
161 166 171 176	
gac aat gaa aat ctg gat gac aaa gat gat gac aca act agg gta gat	576
Asp Asn Glu Asn Leu Asp Asp Lys Asp Asp Asp Thr Thr Arg Val Asp	
177 182 187 192	
gaa tcc ctc aac ata aag gta gaa gct gag gaa gaa aaa gca aaa tct	624
Glu Ser Leu Asn Ile Lys Val Glu Ala Glu Glu Glu Lys Ala Lys Ser	
193 198 203 208	
gga gat gaa acg aat aaa gaa gaa gat gaa gat gat gaa gaa gca gaa	672
Gly Asp Glu Thr Asn Lys Glu Glu Asp Glu Asp Asp Glu Glu Ala Glu	
209 214 219 224	
gag gag gag gag gag gaa gaa gaa gaa gag gat gaa gat gat gat gac	720
Glu Glu Glu Glu Glu Glu Glu Glu Glu Glu Asp Glu Asp Asp Asp Asp	
225 230 235 240	
aac aat gag gaa gag gag ttt gag tgc tat cca cca ggc atg aaa gtc	768
Asn Asn Glu Glu Glu Glu Phe Glu Cys Tyr Pro Pro Gly Met Lys Val	
241 246 251 256	
caa gtg cgg tat gga cga ggg aaa aat caa aaa atg tat gaa gct agt	816
Gln Val Arg Tyr Gly Arg Gly Lys Asn Gln Lys Met Tyr Glu Ala Ser	
257 262 267 272	
att aaa gat tct gat gtc gaa ggt gga gag gtc ctt tac ttg gtg cat	864
Ile Lys Asp Ser Asp Val Glu Gly Gly Glu Val Leu Tyr Leu Val His	
273 278 283 288	
tac tgc gga tgg aat gtg aga tac gat gaa tgg att aaa gca gat aaa	912
Tyr Cys Gly Trp Asn Val Arg Tyr Asp Glu Trp Ile Lys Ala Asp Lys	
289 294 299 304	
ata gta aga cct gct gat aaa aat gtg cca aag ata aaa cat cgg aag	960
Ile Val Arg Pro Ala Asp Lys Asn Val Pro Lys Ile Lys His Arg Lys	
305 310 315 320	
aaa ata aag aat aaa tta gac aaa gaa aaa gac aaa gat gaa aaa tac	1008

Lys	Ile	Lys	Asn	Lys	Leu	Asp	Lys	Glu	Lys	Asp	Lys	Asp	Glu	Lys	Tyr	
321					326					331					336	
tct	cca	aaa	aac	tgt	aaa	ctt	cgg	cgc	ttg	tcc	aaa	cca	cca	ttt	cag	1056
Ser	Pro	Lys	Asn	Cys	Lys	Leu	Arg	Arg	Leu	Ser	Lys	Pro	Pro	Phe	Gln	
337					342					347					352	
aca	aat	cca	tct	cct	gaa	atg	gta	tcc	aaa	ctg	gat	ctc	act	gat	gcc	1104
Thr	Asn	Pro	Ser	Pro	Glu	Met	Val	Ser	Lys	Leu	Asp	Leu	Thr	Asp	Ala	
353					358					363					368	
aaa	aac	tct	gat	act	gct	cat	att	aag	tcc	ata	gaa	att	act	tcg	atc	1152
Lys	Asn	Ser	Asp	Thr	Ala	His	Ile	Lys	Ser	Ile	Glu	Ile	Thr	Ser	Ile	
369					374					379					384	
ctt	aat	gga	ctt	caa	gct	tct	gaa	agt	tct	gct	gaa	gac	agt	gag	cag	1200
Leu	Asn	Gly	Leu	Gln	Ala	Ser	Glu	Ser	Ser	Ala	Glu	Asp	Ser	Glu	Gln	
385					390					395					400	
gaa	gat	gag	aga	ggt	gct	caa	gac	atg	gat	aat	aat	ggc	aaa	gag	gaa	1248
Glu	Asp	Glu	Arg	Gly	Ala	Gln	Asp	Met	Asp	Asn	Asn	Gly	Lys	Glu	Glu	
401					406					411					416	
tct	aag	att	gat	cat	ttg	acc	aac	aac	aga	aat	gat	ctt	att	tca	aag	1296
Ser	Lys	Ile	Asp	His	Leu	Thr	Asn	Asn	Arg	Asn	Asp	Leu	Ile	Ser	Lys	
417					422					427					432	
gag	gaa	cag	aac	agt	tca	tct	ttg	cta	gaa	gaa	aac	aaa	gtt	cat	gca	1344
Glu	Glu	Gln	Asn	Ser	Ser	Ser	Leu	Leu	Glu	Glu	Asn	Lys	Val	His	Ala	
433					438					443					448	
gat	ttg	gta	ata	tcc	aaa	cca	gtg	tca	aaa	tct	cca	gaa	aga	tta	agg	1392
Asp	Leu	Val	Ile	Ser	Lys	Pro	Val	Ser	Lys	Ser	Pro	Glu	Arg	Leu	Arg	
449					454					459					464	
aaa	gat	ata	gaa	gta	tta	tcc	gaa	gat	act	gat	tat	gaa	gaa	gat	gaa	1440
Lys	Asp	Ile	Glu	Val	Leu	Ser	Glu	Asp	Thr	Asp	Tyr	Glu	Glu	Asp	Glu	
465					470					475					480	
gtc	aca	aaa	aag	aga	aag	gat	gtc	aag	aag	gac	aca	aca	gat	aaa	tct	1488
Val	Thr	Lys	Lys	Arg	Lys	Asp	Val	Lys	Lys	Asp	Thr	Thr	Asp	Lys	Ser	
481					486					491					496	
tca	aaa	cca	caa	ata	aaa	cgt	ggt	aaa	aga	agg	tat	tgc	aat	aca	gaa	1536
Ser	Lys	Pro	Gln	Ile	Lys	Arg	Gly	Lys	Arg	Arg	Tyr	Cys	Asn	Thr	Glu	
497					502					507					512	
gag	tgt	cta	aaa	act	gga	tca	cct	ggc	aaa	aag	gaa	gag	aag	gcc	aag	1584
Glu	Cys	Leu	Lys	Thr	Gly	Ser	Pro	Gly	Lys	Lys	Glu	Glu	Lys	Ala	Lys	
513					518					523					528	
aac	aaa	gaa	tca	ctt	tgc	atg	gaa	aac	agt	agc	aac	agc	tct	tca	gat	1632
Asn	Lys	Glu	Ser	Leu	Cys	Met	Glu	Asn	Ser	Ser	Asn	Ser	Ser	Ser	Asp	
529					534					539					544	
gaa	gat	gaa	gaa	gaa	aca	aaa	gca	aag	atg	aca	cca	act	aag	aaa	tac	1680
Glu	Asp	Glu	Glu	Glu	Thr	Lys	Ala	Lys	Met	Thr	Pro	Thr	Lys	Lys	Tyr	

545	550	555	560	
aat ggt ttg gag gaa	aaa aga aaa tct cta	cgg aca act ggt ttc tat	1728	
Asn Gly Leu Glu Glu	Lys Arg Lys Ser Leu	Arg Thr Thr Gly Phe Tyr		
561	566	571	576	
tca gga ttt tca gaa	gtg gca gaa aaa agg	att aaa ctt tta aat aac	1776	
Ser Gly Phe Ser Glu	Val Ala Glu Lys Arg	Ile Lys Leu Leu Asn Asn		
577	582	587	592	
tct gat gaa aga ctt	caa aac agc agg gcc	aaa gat cga aaa gat gtc	1824	
Ser Asp Glu Arg Leu	Gln Asn Ser Arg Ala	Lys Asp Arg Lys Asp Val		
593	598	603	608	
tgg tca agt att cag	gga cag tgg cct aaa	aaa acg ctg aaa gag ctt	1872	
Trp Ser Ser Ile Gln	Gly Gln Trp Pro Lys	Lys Thr Leu Lys Glu Leu		
609	614	619	624	
ttt tca gac tct gat	act gag gct gca gct	tcc cca ccg cat cct gcc	1920	
Phe Ser Asp Ser Asp	Thr Glu Ala Ala Ala	Ser Pro Pro His Pro Ala		
625	630	635	640	
cca gag gag ggg gtg	gca gag gag tca ctg	cag act gtg gct gaa gag	1968	
Pro Glu Glu Gly Val	Ala Glu Glu Ser Leu	Gln Thr Val Ala Glu Glu		
641	646	651	656	
gag agt tgt tca ccc	agt gta gaa cta gaa	aaa cca cct cca gtc aat	2016	
Glu Ser Cys Ser Pro	Ser Val Glu Leu Glu	Lys Pro Pro Pro Val Asn		
657	662	667	672	
gtc gat agt aaa ccc	att gaa gaa aaa aca	gta gag gtc aat gac aga	2064	
Val Asp Ser Lys Pro	Ile Glu Glu Lys Thr	Val Glu Val Asn Asp Arg		
673	678	683	688	
aaa gca gaa ttt cca	agt agt ggc agt aat	tca gtg cta aat acc cct	2112	
Lys Ala Glu Phe Pro	Ser Ser Gly Ser Asn	Ser Val Leu Asn Thr Pro		
689	694	699	704	
cct act aca cct gaa	tcg cct tca tca gtc	act gta aca gaa ggc agc	2160	
Pro Thr Thr Pro Glu	Ser Pro Ser Ser Val	Thr Val Thr Glu Gly Ser		
705	710	715	720	
cgg cag cag tct tct	gta aca gta tca gaa	cca ctg gct cca aac caa	2208	
Arg Gln Gln Ser Ser	Val Thr Val Ser Glu	Pro Leu Ala Pro Asn Gln		
721	726	731	736	
gaa gag gtt cga agt	atc aag agt gaa act	gat agc aca att gag gtg	2256	
Glu Glu Val Arg Ser	Ile Lys Ser Glu Thr	Asp Ser Thr Ile Glu Val		
737	742	747	752	
gat agt gtt gct ggg	gag ctc caa gac ctc	cag tct gaa ggg aat agc	2304	
Asp Ser Val Ala Gly	Glu Leu Gln Asp Leu	Gln Ser Glu Gly Asn Ser		
753	758	763	768	
tcg cca gca ggt ttt	gat gcc agt gtg agc	tca agc agt agt aat cag	2352	
Ser Pro Ala Gly Phe	Asp Ala Ser Val Ser	Ser Ser Ser Ser Asn Gln		
769	774	779	784	

cca gaa cca gaa cat cct gaa aaa gcc tgt aca ggt cag aaa aga gtg	2400
Pro Glu Pro Glu His Pro Glu Lys Ala Cys Thr Gly Gln Lys Arg Val	
785 790 795 800	
aaa gat gct cag gga gga gga agt tca tca aaa aag cag aaa aga agc	2448
Lys Asp Ala Gln Gly Gly Gly Ser Ser Ser Lys Lys Gln Lys Arg Ser	
801 806 811 816	
cat aaa gca aca gtg gta aac aac aaa aag aag gga aaa ggc aca aat	2496
His Lys Ala Thr Val Val Asn Asn Lys Lys Lys Gly Lys Gly Thr Asn	
817 822 827 832	
agt agt gat agt gaa gaa ctt tca gct ggt gaa agt ata act aag agt	2544
Ser Ser Asp Ser Glu Glu Leu Ser Ala Gly Glu Ser Ile Thr Lys Ser	
833 838 843 848	
cag cca gtc aaa tca gtt tcc act gga atg aag tct cat agt acc aaa	2592
Gln Pro Val Lys Ser Val Ser Thr Gly Met Lys Ser His Ser Thr Lys	
849 854 859 864	
tct ccc gca agg acg cag tct cca gga aaa tgt gga aag aat ggt gat	2640
Ser Pro Ala Arg Thr Gln Ser Pro Gly Lys Cys Gly Lys Asn Gly Asp	
865 870 875 880	
aag gat cct gat ctc aag gaa ccc agt aat cga tta ccc aaa gtt tac	2688
Lys Asp Pro Asp Leu Lys Glu Pro Ser Asn Arg Leu Pro Lys Val Tyr	
881 886 891 896	
aaa tgg agt ttt cag atg tcg gac ctg gaa aat atg aca agt gcc gaa	2736
Lys Trp Ser Phe Gln Met Ser Asp Leu Glu Asn Met Thr Ser Ala Glu	
897 902 907 912	
cgc atc aca att ctt caa gaa aaa ctt caa gaa atc aga aaa cat tat	2784
Arg Ile Thr Ile Leu Gln Glu Lys Leu Gln Glu Ile Arg Lys His Tyr	
913 918 923 928	
ctg tca tta aaa tct gaa gta gct tcc att gat cgg agg aga aag cgt	2832
Leu Ser Leu Lys Ser Glu Val Ala Ser Ile Asp Arg Arg Arg Lys Arg	
929 934 939 944	
tta aag aag aaa gag aga gaa agt gct gct aca tcc tca tcc tcc tct	2880
Leu Lys Lys Lys Glu Arg Glu Ser Ala Ala Thr Ser Ser Ser Ser	
945 950 955 960	
tca cct tca tcc agt tcc ata aca gct gct gtt atg tta act tta gct	2928
Ser Pro Ser Ser Ser Ser Ile Thr Ala Ala Val Met Leu Thr Leu Ala	
961 966 971 976	
gaa ccg tca atg tcc agc gca tca caa aat gga atg tca gtt gag tgc	2976
Glu Pro Ser Met Ser Ser Ala Ser Gln Asn Gly Met Ser Val Glu Cys	
977 982 987 992	
agg tga cagcaggact tgctaaagca ctttgactt aatggctgtt gagggccact	3032
Arg *	
993	

Ser 204	Ile	Lys	Ile	Arg	Arg	Glu	Pro	Arg	His	Leu	Ala	Ile	Ser	Asn	Met	
										214					219	
cca	ttg	gtg	aaa	tct	gtg	act	gtt	gct	gaa	gga	ctc	ata	gaa	gac	cat	963
Pro	Leu	Val	Lys	Ser	Val	Thr	Val	Ala	Glu	Gly	Leu	Ile	Glu	Asp	His	
220					225					230					235	
ttt	gat	gtc	act	gtg	aag	atg	agc	acc	tat	ctg	gtg	gcc	ttc	atc	att	1011
Phe	Asp	Val	Thr	Val	Lys	Met	Ser	Thr	Tyr	Leu	Val	Ala	Phe	Ile	Ile	
236					241					246					251	
tca	gat	ttt	gag	tct	gtc	agc	aag	ata	acc	aag	agt	gga	gtc	aag	gtt	1059
Ser	Asp	Phe	Glu	Ser	Val	Ser	Lys	Ile	Thr	Lys	Ser	Gly	Val	Lys	Val	
252					257					262					267	
tct	gtt	tat	gct	gtg	cca	gac	aag	ata	aat	caa	gca	gat	tat	gca	ctg	1107
Ser	Val	Tyr	Ala	Val	Pro	Asp	Lys	Ile	Asn	Gln	Ala	Asp	Tyr	Ala	Leu	
268					273					278					283	
gat	gct	gcg	gtg	act	ctt	cta	gaa	ttt	tat	gag	gat	tat	ttc	agc	ata	1155
Asp	Ala	Ala	Val	Thr	Leu	Leu	Glu	Phe	Tyr	Glu	Asp	Tyr	Phe	Ser	Ile	
284					289					294					299	
ccg	tat	ccc	cta	ccc	aaa	caa	gat	ctt	gct	gct	att	ccc	gac	ttt	cag	1203
Pro	Tyr	Pro	Leu	Pro	Lys	Gln	Asp	Leu	Ala	Ala	Ile	Pro	Asp	Phe	Gln	
300					305					310					315	
tct	ggc	gct	atg	gaa	aac	tgg	gga	ctg	aca	aca	tat	aga	gaa	tct	gct	1251
Ser	Gly	Ala	Met	Glu	Asn	Trp	Gly	Leu	Thr	Thr	Tyr	Arg	Glu	Ser	Ala	
316					321					326					331	
ctg	ttg	ttt	gat	gca	gaa	aag	tct	tct	gca	tca	agt	aag	ctt	ggc	atc	1299
Leu	Leu	Phe	Asp	Ala	Glu	Lys	Ser	Ser	Ala	Ser	Ser	Lys	Leu	Gly	Ile	
332					337					342					347	
aca	gtg	act	gtg	gcc	cat	gaa	ctg	gcc	cac	cag	tgg	ttt	ggg	aac	ctg	1347
Thr	Val	Thr	Val	Ala	His	Glu	Leu	Ala	His	Gln	Trp	Phe	Gly	Asn	Leu	
348					353					358					363	
gtc	act	atg	gaa	tgg	tgg	aat	gat	ctt	tgg	cta	aat	gaa	gga	ttt	gcc	1395
Val	Thr	Met	Glu	Trp	Trp	Asn	Asp	Leu	Trp	Leu	Asn	Glu	Gly	Phe	Ala	
364					369					374					379	
aaa	ttt	atg	gag	ttt	gtg	tct	gtc	agt	gtg	acc	cat	cct	gaa	ctg	aaa	1443
Lys	Phe	Met	Glu	Phe	Val	Ser	Val	Ser	Val	Thr	His	Pro	Glu	Leu	Lys	
380					385					390					395	
gtt	gga	gat	tat	ttc	ttt	ggc	aaa	tgt	ttt	gac	gca	atg	gag	gta	gat	1491
Val	Gly	Asp	Tyr	Phe	Phe	Gly	Lys	Cys	Phe	Asp	Ala	Met	Glu	Val	Asp	
396					401					406					411	
gct	tta	aat	tcc	tca	cac	cct	gtg</									

428		433		438		443	
att ctg aat atg cta	agg gag tat ctt agc	gct gac gca ttt aaa agt	1635				
Ile Leu Asn Met Leu	Arg Glu Tyr Leu Ser	Ala Asp Ala Phe Lys Ser					
444	449	454	459				
ggg att gta cag tat	ctc cag aag cat agc	tat aaa aat aca aaa aac	1683				
Gly Ile Val Gln Tyr	Leu Gln Lys His Ser	Tyr Lys Asn Thr Lys Asn					
460	465	470	475				
gag gac ctg tgg gat	agt atg gca agt att	tgc cct aca gat ggt gta	1731				
Glu Asp Leu Trp Asp	Ser Met Ala Ser Ile	Cys Pro Thr Asp Gly Val					
476	481	486	491				
aaa ggg atg gat ggc	ttt tgc tct aga agt	caa cat tca tct tca tcc	1779				
Lys Gly Met Asp Gly	Phe Cys Ser Arg Ser	Gln His Ser Ser Ser Ser					
492	497	502	507				
tca cat tgg cat cag	gaa ggg gtg gat gtg	aaa acc atg atg aac act	1827				
Ser His Trp His Gln	Glu Gly Val Asp Val	Lys Thr Met Met Asn Thr					
508	513	518	523				
tgg aca ctg cag agg	ggg ttt ccc cta ata	acc atc aca gtg agg ggg	1875				
Trp Thr Leu Gln Arg	Gly Phe Pro Leu Ile	Thr Ile Thr Val Arg Gly					
524	529	534	539				
agg aat gta cac atg	aag caa gag cac tac	atg aag ggc tct gac ggc	1923				
Arg Asn Val His Met	Lys Gln Glu His Tyr	Met Lys Gly Ser Asp Gly					
540	545	550	555				
gcc ccg gac act ggg	tac ctg tgg cat gtt	cca ttg aca ttc atc acc	1971				
Ala Pro Asp Thr Gly	Tyr Leu Trp His Val	Pro Leu Thr Phe Ile Thr					
556	561	566	571				
agc aaa tcc gac atg	gtc cat cga ttt ttg	cta aaa aca aaa aca gat	2019				
Ser Lys Ser Asp Met	Val His Arg Phe Leu	Leu Lys Thr Lys Thr Asp					
572	577	582	587				
gtg ctc atc ctc cca	gaa gag gtg gaa tgg	atc aaa ttt aat gtg ggc	2067				
Val Leu Ile Leu Pro	Glu Glu Val Glu Trp	Ile Lys Phe Asn Val Gly					
588	593	598	603				
atg aat ggc tat tac	att gtg cat tac gag	gat gat gga tgg gac tct	2115				
Met Asn Gly Tyr Tyr	Ile Val His Tyr Glu	Asp Asp Gly Trp Asp Ser					
604	609	614	619				
ttg act ggc ctt tta	aaa gga aca cac aca	gca gtc agc agt aat gat	2163				
Leu Thr Gly Leu Leu	Lys Gly Thr His Thr	Ala Val Ser Ser Asn Asp					
620	625	630	635				
cgg gca agt ctc att	aac aat gca ttt cag	ctc gtc agc att ggg aag	2211				
Arg Ala Ser Leu Ile	Asn Asn Ala Phe Gln	Leu Val Ser Ile Gly Lys					
636	641	646	651				
ctg tcc att gaa aag	gcc ttg gat tta tcc	ctg tac ttg aaa cat gaa	2259				
Leu Ser Ile Glu Lys	Ala Leu Asp Leu Ser	Leu Tyr Leu Lys His Glu					
652	657	662	667				

tgctggctat	at tt t t t g c t a a	a c t g c c c t c t	c a a a t g t t g c	t a g g a a t t c a	t a c t g c g a a a	4446
agcaatgaat	a a g c a t g c c t	g t t t t c c c a t	g g c c t t g c t t	g c c a g a a t t t	g a c t t t t a t t	4506
atgataatca	g t g t a a a a t g	a t a t a c t a c t	a t t g c t t g t a	t a t t g t g g t a	t a c g g t g t c a	4566
gg t t t c a g g g	t t t t t t t t c a	a c g t t a a a t a	t t c t a g a a a c	t t t c t g a a a t	a a t t t c t g t t	4626
t a a a a a t a t t	g a a t a t t t g c	t t c a t t t c a a	a t a c t c c c t t	t t g a c a a a a a	a a c t t a g g t a	4686
t a a c t g t t g a	t g a a a a a c c a	g a a a a a a g t c	c a g a a c t c t t	t g g t g a c t c c	a a c t a t g g a t	4746
a g c t t a t t t t	g a a a a a g g a g	a a t t g c a a a t	t t t a c c a a a a	g a t g g g a g a a a	a g c a c a t t a a	4806
a a a g a t a c c a	a c a t t c a g a a	a t t c a t t t c a	g c a t g t t a t t	a t t g g a a a t t	a t t t a a a c t a	4866
a t t t a g a t a a	c t a t a a g a t a	c t t a t t g t c c	a t t t a t a c c c	t g t a a a g c c g	t t t t a g a a t g	4926
t a a t a t t t t a	g g t a a t c c a a	a a t g t a c t a a	a t t a a a t t c a	t t t t t a g t t a	t g a g a a a t c t	4986
t t g c t t a t a t	g a c a a a t g a a	a a g a a t a a c a	a g t t g t c a a a	t g a a a a g a a t	g a c a t t g a a a	5046
c a t t t g t a t t	g t c t c t t c t t	a a a c t a t c t t	a t t g a c t t a t	t a t t t a a g c c	t t t t a a t a c t	5106
a a g t a t g a a a	c a a c c t a t g g	t c t g g a a a t t	t g t a t c g c a a	a g c t a t a t g t	g c a t a t g t t a	5166
t t t a a t t c a t	c t a a c g c t a c	a c a a a a g c a t	a a a a t a a t g a	t t t t t c a c t c	t c t t t a a a a a	5226
t a c t a a a t c a	t t t a t g t c c a	t t t c t c a a t t	t t t t c a t t g a	t c t a t g c t t t	g a g t t t g c t t	5286
t c t c a a c a t t	a t t g t a t t t t	c c a c t t a t t a	t t a c t g t a t a	a c a t a t g c t a	g t g t t t a g t t	5346
g g a t t a a t c t	t a c c t a a a a g	t a c t g a a a a a	t g c t t t t t a g	t a c t t t t t c a	t a t t t t a t a c	5406
a t t t a t t t t c	c g a a t g t a t c	a t t g a a t a a t	t t t a t t g a g t	t a t a a a a g t a	t c t t a t t g c t	5466
a t t t a a t a a a	a a a t t a a c a c	a t a a a a t g a c	t t g a a t t g t c	a t c a t t c t t t	t t a a g a t a t t	5526
t a g t t a a a c t	g a c t t a a t g t	a t g g c c t t c a	a t t t t t t t g t	g t c c t t a t t t	t t c t g a t c a t	5586
t t c t c c t t t t	a t a g t t t a c a	t t a a g t c t g a	t c t c a t a t t a	a t t a c a t t t t	c t c a t c t g t t	5646
g t t a c t a a t a	a a c a t g g c a t	a a t g t t a c t t	a c a a a t g t a t	t a t c t a c a a g	t a g t g c t a t c	5706
c a c a a a t a t a	t t c a a a t g t t	c c c t t t t a a t	g t t t g t c a t t	t t t t t c a t g t	g t t g t t a a t g	5766
a t t c t t c c a t	g t g a t a a t a a	g c a g a a a t g a	c a a t a a a c t t	t t c a t a g t t t	c t g a t t t t a a	5826
g g a a a a t g c c	t c c a g c a t g a	t a t t g a a t a t	t t g a t t c t g a	a a a c t a a a g a	c t c t t t a a c a	5886
g a t t a g g g g a	t t g c c t a c t t	t t t a a a a a g t	t t t t a t t t a t	a a t a t g a g t a	t a t g t a a a a t	5946
t t t a a a t a g a	t c t t t t a c a t	g g a c a t g a t t	a t t t g t t t c t	a t t t g a t a t a	c c a c t a c a a t	6006
a t a t t g a c a g	t t t t c c t g c t	a c t g a a t c a a	t a c t t a t a a t	g g c a a a t a a t	t t a a c t g t t t	6066

gttatattct atgtatgctg tatgtaattt ttacatctac acatttaagt aacttttagct 6126
 gataccgtta tatttgtcag attttaagat tagcaccata attactcata gaagcaacta 6186
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 cacatttatg ttaaatttta ttagtaagat tattttctct atttatcagt tttgtaaaat 6486
 gttaaaaatt cataaaagcc aactgactat tggctttaaa ctaccaataa tttagttgat 6546
 ctctatatta ttatattact ctgttaaaat ttaattgtat tttttgtaag gtttttttc 6606
 ctcttttata tttgctagta ttttataaag tatttgttat ttcaaaagaa acaactattg 6666
 gccagttaac tttcatgccg ctattttcat ttcttggtat gcttattgct actttgtttt 6726
 tgggtggtac cttattaaaa cttttagaaa tttcagttt 6765

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 Phe Tyr Leu Gly Val Leu Ala Gly Thr Phe Phe Phe Ala Asp Ser Ser
 5 10 15 20
 gtt cag aaa gaa gac cct gct ccc tat ttg gtg tac ctc aag tct cac 149
 Val Gln Lys Glu Asp Pro Ala Pro Tyr Leu Val Tyr Leu Lys Ser His
 21 26 31 36
 ttc aac ccc tgt gtg ggc gtc ctc atc aaa ccc agc tgg gtg ctg gcc 197
 Phe Asn Pro Cys Val Gly Val Leu Ile Lys Pro Ser Trp Val Leu Ala
 37 42 47 52
 cca gct cac tgc tat tta cca aat ctg aaa gtg atg ctg gga aat ttc 245
 Pro Ala His Cys Tyr Leu Pro Asn Leu Lys Val Met Leu Gly Asn Phe
 53 58 63 68

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aag agc aga gtc aga gac ggt act gaa cag aca att aac ccc att cag      293
Lys Ser Arg Val Arg Asp Gly Thr Glu Gln Thr Ile Asn Pro Ile Gln
69                               74                               79                               84

atc gtc cgc tac tgg aac tac agt cat agc gcc cca cag gat gac ctc      341
Ile Val Arg Tyr Trp Asn Tyr Ser His Ser Ala Pro Gln Asp Asp Leu
85                               90                               95                               100

atg ctc atc aag ctg gct aag cct gcc atg ctc aat ccc aaa gtc cag      389
Met Leu Ile Lys Leu Ala Lys Pro Ala Met Leu Asn Pro Lys Val Gln
101                              106                              111                              116

ccc ctt ccc ctc gcc acc acc aat gtc agg cca ggc act gtc tgt cta      437
Pro Leu Pro Leu Ala Thr Thr Asn Val Arg Pro Gly Thr Val Cys Leu
117                              122                              127                              132

ctc tca ggt ttg gac tgg agc caa gaa aac agt ggc cga cac cct gac      485
Leu Ser Gly Leu Asp Trp Ser Gln Glu Asn Ser Gly Arg His Pro Asp
133                              138                              143                              148

ttg cgg cag aac ctg gag gcc ccc gtg atg tct gat cga gaa tgc caa      533
Leu Arg Gln Asn Leu Glu Ala Pro Val Met Ser Asp Arg Glu Cys Gln
149                              154                              159                              164

aaa aca gaa caa gga aaa agc cac agg aat tcc tta tgt gtg aaa ttt      581
Lys Thr Glu Gln Gly Lys Ser His Arg Asn Ser Leu Cys Val Lys Phe
165                              170                              175                              180

gtg aaa gta ttc agc cga att ttt ggg gag gtg gcc gtt gct act gtc      629
Val Lys Val Phe Ser Arg Ile Phe Gly Glu Val Ala Val Ala Thr Val
181                              186                              191                              196

atc tgc aaa gac aag ctc cag gga atc gag gtg ggg cac ttc atg gga      677
Ile Cys Lys Asp Lys Leu Gln Gly Ile Glu Val Gly His Phe Met Gly
197                              202                              207                              212

ggg gac gtc ggc atc tac acc aat gtt tac aaa tat gta tcc tgg att      725
Gly Asp Val Gly Ile Tyr Thr Asn Val Tyr Lys Tyr Val Ser Trp Ile
213                              218                              223                              228

gag aac act gct aag gac aag tga gaccctactt ctccctctgc attccactgg      779
Glu Asn Thr Ala Lys Asp Lys *
229                              234

ctctgccatg gactatacaa gcagataatt ttccctctat tcaaaataaa atctccaaat      839

gaaaatttgg gaatgtagca tactagt                                          866

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Met Ala Thr Lys
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Lys His Phe Ser Ile Ile Leu Asn Leu Leu Gly Met Leu Leu Lys Lys
5 10 15 20

gat aac cag gac acg agg aaa ctg tta atg act tgg gct ttg gaa gta 151
Asp Asn Gln Asp Thr Arg Lys Leu Leu Met Thr Trp Ala Leu Glu Val
21 26 31 36

gct gtt gta atg aag aag tcc gaa aca tat gca cct tta ttc tgt ctt 199
Ala Val Val Met Lys Lys Ser Glu Thr Tyr Ala Pro Leu Phe Cys Leu
37 42 47 52

cgc tct ttc cat aaa ttt tgc aaa ggc ctt tta gcc gac act ctc gtt 247
Pro Ser Phe His Lys Phe Cys Lys Gly Leu Leu Ala Asp Thr Leu Val
53 58 63 68

gaa gat gtg aat atc tgt ctg cag gca tgc agc agt cta cat gct cta 295
Glu Asp Val Asn Ile Cys Leu Gln Ala Cys Ser Ser Leu His Ala Leu
69 74 79 84

tcc tct tcc ttg cca gat gat ctt tta cag aga tgt gtt gat gtt tgc 343
Ser Ser Ser Leu Pro Asp Asp Leu Leu Gln Arg Cys Val Asp Val Cys
85 90 95 100

cgt gtc caa cta gtg cac cgt gga act tgt att cga caa gca ttt gga 391
Arg Val Gln Leu Val His Arg Gly Thr Cys Ile Arg Gln Ala Phe Gly
101 106 111 116

aaa ctg ttg aaa tca att cct tta ggt gtt ttc cta agc gat aac aat 439
Lys Leu Leu Lys Ser Ile Pro Leu Gly Val Phe Leu Ser Asp Asn Asn
117 122 127 132

cac aca gaa att caa gaa att tct tta gca tta aga agt cac atg agt 487
His Thr Glu Ile Gln Glu Ile Ser Leu Ala Leu Arg Ser His Met Ser
133 138 143 148

aaa gca cca agt aat aca ttc cac ccc caa gat ttc tct gat gtt att 535
Lys Ala Pro Ser Asn Thr Phe His Pro Gln Asp Phe Ser Asp Val Ile
149 154 159 164

agt ttt att ttg tat ggg aac tct cat aga aca ggg aag gac aat tgg 583
Ser Phe Ile Leu Tyr Ggly Asn Ser His Arg Thr Gly Lys Asp Asn Trp
165 170 175 180

ttg gaa aga ctg ttc tat agc tgc cag aga ctg gat aag cgt gac cag 631
Leu Glu Arg Leu Phe Tyr Ser Cys Gln Arg Leu Asp Lys Arg Asp Gln
181 186 191 196

tca aca att cca cgc aat ctc ctg aag aca gat gct atc ctt tgg cag 679

Ser Thr Ile Pro Arg Asn Leu Leu Lys Thr Asp Ala Ile Leu Trp Gln	
197 202 207 212	
tgg gcc ata tgg gaa gct gca caa ttc act gtt ctt tct aag ctg aga	727
Trp Ala Ile Trp Glu Ala Ala Gln Phe Thr Val Leu Ser Lys Leu Arg	
213 218 223 228	
acc cca ctg ggc aga gct caa gac acc ttc cag aca att gaa ggt atc	775
Thr Pro Leu Gly Arg Ala Gln Asp Thr Phe Gln Thr Ile Glu Gly Ile	
229 234 239 244	
att cga agt ctc gca gct cac aca tta aac cct gat cag gat gtt agt	823
Ile Arg Ser Leu Ala Ala His Thr Leu Asn Pro Asp Gln Asp Val Ser	
245 250 255 260	
cag tgg aca act gca gac agt gat gaa ggc cat ggt aac aac caa ctt	871
Gln Trp Thr Thr Ala Asp Ser Asp Glu Gly His Gly Asn Asn Gln Leu	
261 266 271 276	
aga ctt gtt ctt ctt ctg cag tat ctg gaa tat ctg gag aaa tta atg	919
Arg Leu Val Leu Leu Leu Gln Tyr Leu Glu Tyr Leu Glu Lys Leu Met	
277 282 287 292	
tat aat gca tac gag gga tgt gct aat gcc tta act tca cct ccc aag	967
Tyr Asn Ala Tyr Glu Gly Cys Ala Asn Ala Leu Thr Ser Pro Pro Lys	
293 298 303 308	
gtc att aga act ttt ttg tat acc aat cgc caa act tgt cag gac tgg	1015
Val Ile Arg Thr Phe Leu Tyr Thr Asn Arg Gln Thr Cys Gln Asp Trp	
309 314 319 324	
cta acg cgg att cga ctc tcc atc atg agg gta gga ttg ttg gca ggc	1063
Leu Thr Arg Ile Arg Leu Ser Ile Met Arg Val Gly Leu Leu Ala Gly	
325 330 335 340	
cag cct gca gtg aca gtg aga cat ggc ttt gac ttg ctt aca gag atg	1111
Gln Pro Ala Val Thr Val Arg His Gly Phe Asp Leu Leu Thr Glu Met	
341 346 351 356	
aaa aca acc agc cta tct cag ggg aat gaa ttg gaa gta agc att atg	1159
Lys Thr Thr Ser Leu Ser Gln Gly Asn Glu Leu Glu Val Ser Ile Met	
357 362 367 372	
atg gtg gta gaa gca cta tgt gaa ctt cat tgt cct gaa gct ata cag	1207
Met Val Val Glu Ala Leu Cys Glu Leu His Cys Pro Glu Ala Ile Gln	
373 378 383 388	
gga att gct gtc tgg tca tca tct att gtt gga aaa cat ctt ctg tgg	1255
Gly Ile Ala Val Trp Ser Ser Ser Ile Val Gly Lys His Leu Leu Trp	
389 394 399 404	
att aac tca gtg gct caa cag gct gaa ggg agg ttt gaa aag gcc tct	1303
Ile Asn Ser Val Ala Gln Gln Ala Glu Gly Arg Phe Glu Lys Ala Ser	
405 / 410 415 420	
gtg gag tac cag gaa cac ctg tgt gcc atg aca ggt gtt gat tgc tgc	1351
Val Glu Tyr Gln Glu His Leu Cys Ala Met Thr Gly Val Asp Cys Cys	

421	426	431	436	
atc tcc agc ttt gac	aaa tcg gtg ctc acc	tta gcc agt gct ggg tgt		1399
Ile Ser Ser Phe Asp	Lys Ser Val Leu Thr	Leu Ala Ser Ala Gly Cys		
437	442	447	452	
aag agt gcc agc ctg	aaa cat tgt ctg aat	ggt gaa tcc aga aaa agt		1447
Lys Ser Ala Ser Leu	Lys His Cys Leu Asn	Gly Glu Ser Arg Lys Ser		
453	458	463	468	
gtg ctg tcc aaa ccg	act gac tct tcc cct	gag gtt ata aat tat tta		1495
Val Leu Ser Lys Pro	Thr Asp Ser Ser Pro	Glu Val Ile Asn Tyr Leu		
469	474	479	484	
gga aac aaa gca tgt	gag tgc tac atc tca	act gcc gat tgg gct gct		1543
Gly Asn Lys Ala Cys	Glu Cys Tyr Ile Ser	Thr Ala Asp Trp Ala Ala		
485	490	495	500	
gtg cag gaa tgg cag	aac gct atc cat gac	ttg aaa aag agt acc agt		1591
Val Gln Glu Trp Gln	Asn Ala Ile His Asp	Leu Lys Lys Ser Thr Ser		
501	506	511	516	
agc act tcc ctc aac	ctg aaa gct gac ttc	aac tat ata aaa tca tta		1639
Ser Thr Ser Leu Asn	Leu Lys Ala Asp Phe	Asn Tyr Ile Lys Ser Leu		
517	522	527	532	
agc agc ttt gag tct	gga aaa ttt gtc gaa	tgt acc gag caa tta gaa		1687
Ser Ser Phe Glu Ser	Gly Lys Phe Val Glu	Cys Thr Glu Gln Leu Glu		
533	538	543	548	
ttg tta cca gga gaa	aat atc aat cta ctt	gct gga gga tca aaa gaa		1735
Leu Leu Pro Gly Glu	Asn Ile Asn Leu Leu	Ala Gly Gly Ser Lys Glu		
549	554	559	564	
aaa ata gac atg aaa	aaa ctg ctt cgt aac	atg tga agtc cagatccaag		1785
Lys Ile Asp Met Lys	Lys Leu Leu Arg Asn	Met *		
565	570	575		
ggaacctcag aaatccattg aagttccatt gttaagaagt tctgtttgtt tggcaactgc				1845
tttaaaccgc atagaacaag atcagaagtg gcagtctata actgaaaatg tggtaaagta				1905
cttgaagcaa acatcccgca tcgctattgg acctctgaga ctttctactt taacagtttc				1965
acagtctttg ccagttctaa gtaccttgca gctgtattgc tcgtctgctt tggagaccac				2025
agtttctaac agactttcaa cagaggactg tcttattcca ctcttcggcg aagctttacg				2085
ttcatgtaaa cagcatgacg tgaggccgtg gatgcaggca ttaaggtata ctgtgtacca				2145
gaatcagttg ttggagaaaa ttaaagttaa gtgggtttcc tttttttttt ttgtaagaga				2205
aaattaaagg tggttttttt tttttaattt tgctttattg aggtttatat tacacattct				2265
aagtgtatgg tttgatgagt tctaacatgt cttcacttgt gtgaccacca atacgatcga				2325
gatacagaac agcgtcttac cccagaaggt tcccttgaga tcctctctc atttgccctt				2385

gtcagcagtt actgatttgc tttctgtcac tatggattag acttgtcttt actaaagttt 2445
catgtacgtg aaatcattac caccaaa 2472

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ggcgggtagc tgtgcttttc tttcccgttt gtaggtgaaa cccattggc ttcattggct 180
ccttgattta aaccacgccc ggctttctgc cctctttgct gctgctgggc caggttgccc 240
agccatatcc cagccccgtc tgcagggagc cggaggctgc tgctgctgct attgtgtgga 300
tgccgcgcgt gtcttctctt ctttccagag atg gct aac agg ggc ccg agc 351
Met Ala Asn Arg Gly Pro Ser
1 5
tat ggc tta agc cga gag gtg cag gag aag atc gag cag aag tat gat 399
Tyr Gly Leu Ser Arg Glu Val Gln Glu Lys Ile Glu Gln Lys Tyr Asp
8 13 18 23
gcg gac ctg gag aac aag ctg gtg gac tgg atc atc ctg cag tgc gcc 447
Ala Asp Leu Glu Asn Lys Leu Val Asp Trp Ile Ile Leu Gln Cys Ala
24 29 34 39
gag gac ata gag cac ccg ccc ccc ggc agg gcc cat ttt cag aaa tgg 495
Glu Asp Ile Glu His Pro Pro Pro Gly Arg Ala His Phe Gln Lys Trp
40 45 50 55
tta atg gac ggg acg gtc ctg tgc aag ctg ata aat agt tta tac cca 543
Leu Met Asp Gly Thr Val Leu Cys Lys Leu Ile Asn Ser Leu Tyr Pro
56 61 66 71
cca gga caa gag ccc ata ccc aag atc tca gag tca aag atg gct ttt 591
Pro Gly Gln Glu Pro Ile Pro Lys Ile Ser Glu Ser Lys Met Ala Phe
72 77 82 87
aag cag atg gag caa atc tcc cag ttc cta aaa gct gcg gag acc tat 639
Lys Gln Met Glu Gln Ile Ser Gln Phe Leu Lys Ala Ala Glu/Thr Tyr
88 93 98 103
ggg gtc aga acc acc gac atc ttt cag acg gtg gat cta tgg gaa ggg 687

Gly Val Arg Thr Thr Asp Ile Phe Gln Thr Val Asp Leu Trp Glu Gly	
104 109 114 119	
aag gac atg gca gct gtg cag agg acc ctg atg gct tta ggc agc gtt	735
Lys Asp Met Ala Ala Val Gln Arg Thr Leu Met Ala Leu Gly Ser Val	
120 125 130 135	
gca gtc acc aag gat gat ggc tgc tat cgg gga gag cca tcc tgg ttt	783
Ala Val Thr Lys Asp Asp Gly Cys Tyr Arg Gly Glu Pro Ser Trp Phe	
136 141 146 151	
cac agg aaa gcc cag cag aat cgg aga ggc ttt tcc gag gag cag ctt	831
His Arg Lys Ala Gln Gln Asn Arg Arg Gly Phe Ser Glu Glu Gln Leu	
152 157 162 167	
cgc cag gga cag aac gta ata ggc ctg cag atg ggc agc aac aag gga	879
Arg Gln Gly Gln Asn Val Ile Gly Leu Gln Met Gly Ser Asn Lys Gly	
168 173 178 183	
gcc tcc cag gcg ggc atg aca ggg tac ggg atg ccc agg cag atc atg	927
Ala Ser Gln Ala Gly Met Thr Gly Tyr Gly Met Pro Arg Gln Ile Met	
184 189 194 199	
tag gacg cggcatcctg cccctggtag agaggacgaa tgttccacac catggtctct	984
* 200	
acgaaaaaga aatagttagt caccttctga ccttctcctc tttctcaaag ccttctgtcc	1044
ctgggtttttg caagtgtctgc atttccgccg agaatccgcg ttgcctactg ctgccacctc	1104
ctgttcattt agaactatgc aaagactccg cttccgtttt cctgagctcc tcggggcccca	1164
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acttatagaa tgcacctaat aaagtaatta gtcttgtgtc aaaaaaaaaa aa	1276

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taccagcagc agcactagac cccaacattg caacacttgg agagatacca cagccaccac	180
ttatgggaaa cgtggatcct tccaaaatag atgaaattag gagaacggtt tatgttgga	240

aag gaa cag gac aaa gaa aag gaa cga gaa aaa gac aga tcc aaa gag	1252
Lys Glu Gln Asp Lys Glu Lys Glu Arg Glu Lys Asp Arg Ser Lys Glu	
151 156 161 166	
ata gat gaa aaa aga aag aag gat aaa aaa tcc aga aca cca ccc agg	1300
Ile Asp Glu Lys Arg Lys Lys Asp Lys Lys Ser Arg Thr Pro Pro Arg	
167 172 177 182	
agt tac aat gca tgc cga aga tct cgt agt tcc agc agg gaa agg cgt	1348
Ser Tyr Asn Ala Ser Arg Arg Ser Arg Ser Ser Ser Arg Glu Arg Arg	
183 188 193 198	
agg agg agg agc agg agt tct tcc aga tgc cca aga aca tca aaa acc	1396
Arg Arg Arg Ser Arg Ser Ser Ser Arg Ser Pro Arg Thr Ser Lys Thr	
199 204 209 214	
ata aaa agg aaa tct tct aga tct ccg tcc ccc agg aga aat aag aag	1444
Ile Lys Arg Lys Ser Ser Arg Ser Pro Ser Pro Arg Arg Asn Lys Lys	
215 220 225 230	
gat aaa aag aga gaa aaa gaa agg gac cac atc agt gaa aga aga gag	1492
Asp Lys Lys Arg Glu Lys Glu Arg Asp His Ile Ser Glu Arg Arg Glu	
231 236 241 246	
aga gaa cgt tca acg tct atg aga aag agt tct aat gat aga gat ggg	1540
Arg Glu Arg Ser Thr Ser Met Arg Lys Ser Ser Asn Asp Arg Asp Gly	
247 252 257 262	
aag gag aag ttg gag aag aac agt act tca ctt aaa gag aaa gag cac	1588
Lys Glu Lys Leu Glu Lys Asn Ser Thr Ser Leu Lys Glu Lys Glu His	
263 268 273 278	
aat aaa gaa cca gat tca agt gtg agc aaa gaa gta gat gac aag gat	1636
Asn Lys Glu Pro Asp Ser Ser Val Ser Lys Glu Val Asp Asp Lys Asp	
279 284 289 294	
gca cca agg act gag gaa aac aaa ata cag cac aat ggg aat tgt cag	1684
Ala Pro Arg Thr Glu Glu Asn Lys Ile Gln His Asn Gly Asn Cys Gln	
295 300 305 310	
ctg aat gaa gaa aac ctc tct acc aaa aca gaa gca gta tag gaccgac	1733
Leu Asn Glu Glu Asn Leu Ser Thr Lys Thr Glu Ala Val *	
311 316 321	
aagtgtacct ctgcactcaa tgctggaatc aaatccaaag cttttaattc tctcaacaag	1793
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<222> (67)..(486)

<400> 486

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Met Ser Ser Leu Pro Val Pro Tyr Thr Leu Pro Val Ser Leu
1 5 10
cct gtt ggt tgc tgc gtg ata atc aca ggg aca ccg atc ctc act ttt 156
Pro Val Gly Ser Cys Val Ile Ile Thr Gly Thr Pro Ile Leu Thr Phe
15 20 25 30
gtc aag gac cca cag ctg gag gtg aat ttc tac act ggg atg gat gag 204
Val Lys Asp Pro Gln Leu Glu Val Asn Phe Tyr Thr Gly Met Asp Glu
31 36 41 46
gac tca gat att gct ttc caa ttc cga ctg cac ttt ggt cat cct gca 252
Asp Ser Asp Ile Ala Phe Gln Phe Arg Leu His Phe Gly His Pro Ala
47 52 57 62
atc atg aac agt tgt gtg ttt ggc ata tgg aga tat gag gag aaa tgc 300
Ile Met Asn Ser Cys Val Phe Gly Ile Trp Arg Tyr Glu Glu Lys Cys
63 68 73 78
tac tat tta ccc ttt gaa gat ggc aaa cca ttt gag ctg tgc atc tat 348
Tyr Tyr Leu Pro Phe Glu Asp Gly Lys Pro Phe Glu Leu Cys Ile Tyr
79 84 89 94
gtg cgt cac aag gaa tac aag gta atg gta aat ggc caa cgc att tac 396
Val Arg His Lys Glu Tyr Lys Val Met Val Asn Gly Gln Arg Ile Tyr
95 100 105 110
aac ttt gcc cat cga ttc ccg cca gca tct gtg aag atg ctg caa gtc 444
Asn Phe Ala His Arg Phe Pro Pro Ala Ser Val Lys Met Leu Gln Val
111 116 121 126
ttg aga gat atc tcc ctg acc aga gtg ctt atc agc gat tga gggagat 493
Leu Arg Asp Ile Ser Leu Thr Arg Val Leu Ile Ser Asp *
127 132 137
gatcagactc ctcattgttg aggaatccct ctttctacct gaccatggga ttcccagagc 553
ctactaacag aataatccct cctcaccct tcccctacac ttgatcatta aaacagcacc 613
aaacctcaaa aaaaaaaaaa 632

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<211> 2102

<212> DNA

<213> Homo sapiens

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<221> CDS

<222> (309) .. (1283)

<400> 487

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agaagaaact gaggcctgga atttgattaa ctcattcaag gttacccagt tggttaattca	180
tttgacacacc tgtttagcaag aaacagaagt tgaaggactg gaacaagtga actaggaaag	240
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Glu Gly Ile Leu Glu Asp Leu Gln Ser Tyr Arg Gly Ala Gly His Glu	
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Ile Arg Glu Ala Ile Gln His Pro Ala Asp Glu Lys Leu Gln Glu Lys	
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Ala Trp Gly Ala Val Val Pro Leu Val Gly Lys Leu Lys Lys Phe Tyr	
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Met Ser Tyr Ala Glu Lys Pro Asp Glu Ile Thr Lys
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Asp Glu Trp Met Glu Lys Leu Asn Asn Leu His Val Gln Arg Ala Asp
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Ala Ala Glu Lys Phe Arg Met Glu Ser Gly Ile Glu Pro Ser Val Asp
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Thr Pro Lys Leu Ala Lys Leu Leu Lys Leu Leu Leu Trp Ala Gln Asn	
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Gln Ser Leu Arg Ser Asn Asn Ile Ala Glu Leu Ser Pro Gly Ala Ile	
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Asn Lys Ala Thr Ser	Lys Ala Pro Gln Gly	Ser Asn Ser Lys Thr	Pro	
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gg acc gag ac gg acc ggt agc cgt gcc ag ag ccc ggg ggc tct cgg atg cgg cag 175
Met Arg Gln
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Asp Lys Leu Thr Gly Ser Leu Arg Arg Gly Gly Arg Cys Leu Lys Arg
4 9 14 19
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Gln Gly Gly Gly Val Gly Thr Ile Leu Ser Asn Val Leu Lys Lys Arg
20 25 30 35
agc tgc att tcc cgg acc gcg ccc cgg ctg ctg tgc acc ctg gag ccg 319
Ser Cys Ile Ser Arg Thr Ala Pro Arg Leu Leu Cys Thr Leu Glu Pro
36 41 46 51
gga gtt gat acc aag ttg aaa ttc act ctt gag cca tct tta ggt caa 367
Gly Val Asp Thr Lys Leu Lys Phe Thr Leu Glu Pro Ser Leu Gly Gln
52 57 62 67
aat ggt ttt cag cag tgg tac gat gct ctc aag gca gtt gcc agg cta 415
Asn Gly Phe Gln Gln Trp Tyr Asp Ala Leu Lys Ala Val Ala Arg Leu
68 73 78 83
tcc aca gga ata cca aag gaa tgg agg aga aag gtt tgg ttg acc ttg 463
Ser Thr Gly Ile Pro Lys Glu Trp Arg Arg Lys Val Trp Leu Thr Leu
84 89 94 99
gca gat cat tat ttg cac agt ata gcc att gac tgg gac aaa acc atg 511
Ala Asp His Tyr Leu His Ser Ile Ala Ile Asp Trp Asp Lys Thr Met
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cgc ttc act ttc aat gaa agg agt aat cct gat gat gac tcc atg gga 559
Arg Phe Thr Phe Asn Glu Arg Ser Asn Pro Asp Asp Asp Ser Met Gly
116 121 126 131

att cag ata gtc aag gac ctt cac cgc aca ggc tgt agt tct tac tgt	607
Ile Gln Ile Val Lys Asp Leu His Arg Thr Gly Cys Ser Ser Tyr Cys	
132 137 142 147	
ggc cag gag gct gag cag gac agg gtt gtg ttg aag cgg gtg ctg ctg	655
Gly Gln Glu Ala Glu Gln Asp Arg Val Val Leu Lys Arg Val Leu Leu	
148 153 158 163	
gcc tat gcc cga tgg aac aaa act gtt ggg tac tgc caa ggc ttt aac	703
Ala Tyr Ala Arg Trp Asn Lys Thr Val Gly Tyr Cys Gln Gly Phe Asn	
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Ile Leu Ala Ala Leu Ile Leu Glu Val Met Glu Gly Asn Glu Gly Asp	
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Ala Leu Lys Ile Met Ile Tyr Leu Ile Asp Lys Val Leu Pro Glu Ser	
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Arg Asp Leu Leu Arg Met Lys Leu Pro Glu Leu Ser Gln His Leu Asp	
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Lys Leu Gly Glu Gln Ile Glu Cys Cys Glu Thr Ala Asp Glu Phe Tyr	
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Ser Thr Met Gly Arg Leu Thr Gln Glu Met Leu Glu Asn Asp Leu Leu	
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Gln Ser Pro Glu Pro Val Phe Gly Asp Ala Asp Val Asp Val Ser Ala				
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Val Gln Ala Lys Leu Gly Ala Leu Glu Leu Asn Gln Arg Asp Ala Ala				
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Ala Glu Thr Glu Leu Arg Val His Pro Pro Cys Gln Arg His Cys Pro				
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gag ccg ccg agt gca ccc gaa gaa aac aaa gcc acc agc aaa gct ccc				2191
Glu Pro Pro Ser Ala Pro Glu Glu Asn Lys Ala Thr Ser Lys Ala Pro				
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Gln Gly Ser Asn Ser Lys Thr Pro Ile Phe Ser Pro Phe Pro Ser Val				
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Lys Pro Leu Arg Lys Ser Ala Thr Ala Arg Asn Leu Gly Leu Tyr Gly				
692	697	702	707	
cct aca gaa aga acc cca act gtg cac ttt cct caa atg agt agg agc				2335
Pro Thr Glu Arg Thr Pro Thr Val His Phe Pro Gln Met Ser Arg Ser				
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Phe Ser Lys Pro Gly Gly Gly Asn Ser Gly Thr Lys Lys Arg *				
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 Met Cys Gly Val Asn Ile Ile Cys Phe
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 cag gaa gca tgg act atg ccc ttt gcc ttc tgt acg aga gag aag ctt 159
 Gln Glu Ala Trp Thr Met Pro Phe Ala Phe Cys Thr Arg Glu Lys Leu
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 cct tgg aca gaa ttt gct gag tca gca gag gat ggg ccc acc acc aga 207
 Pro Trp Thr Glu Phe Ala Glu Ser Ala Glu Asp Gly Pro Thr Thr Arg
 26 31 36 41
 ttc tgt cag aag ctg gcg aag aac cat gac atg gtg gtg gtg tct ccc 255
 Phe Cys Gln Lys Leu Ala Lys Asn His Asp Met Val Val Val Ser Pro
 42 47 52 57
 atc ctg gaa cga gac agc gag cat ggg gat gtt ttg tgg aat aca gcc 303
 Ile Leu Glu Arg Asp Ser Glu His Gly Asp Val Leu Trp Asn Thr Ala
 58 63 68 73
 gtg gtg atc tcc aat tcc gga gca gtc ctg gga aag acc agg aaa aac 351
 Val Val Ile Ser Asn Ser Gly Ala Val Leu Gly Lys Thr Arg Lys Asn
 74 79 84 89
 cac atc ccc aga gtg ggt gat ttc aac gag tca act tac tac atg gag 399
 His Ile Pro Arg Val Gly Asp Phe Asn Glu Ser Thr Tyr Tyr Met Glu
 90 95 100 105
 gga aac ctg ggc cac ccc gtg ttc cag acg cag ttc gga agg atc gcg 447
 Gly Asn Leu Gly His Pro Val Phe Gln Thr Gln Phe Gly Arg Ile Ala
 106 111 116 121
 gtg aac att tgc tac ggg cgg cac cac ccc ctc aac tgg ctt atg tac 495
 Val Asn Ile Cys Tyr Gly Arg His His Pro Leu Asn Trp Leu Met Tyr

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Ser Ile Asn Gly Ala	Glu Ile Ile Phe Asn	Pro Ser Ala Thr Ile	Gly			
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Ala Leu Ser Glu Ser	Leu Trp Pro Ile Glu	Ala Arg Asn Ala Ala	Ile			
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Phe Pro Asn Glu Phe	Thr Ser Gly Asp Gly	Lys Lys Ala His Gln	Asp			
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Phe Gly Tyr Phe Tyr	Gly Ser Ser Tyr Val	Ala Ala Pro Asp Ser	Ser			
202	207	212	217			
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Arg Thr Pro Gly Leu	Ser Arg Ser Arg Asp	Gly Leu Leu Val Ala	Lys			
218	223	228	233			
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Leu Asp Leu Asn Leu	Cys Gln Gln Val Asn	Asp Val Trp Asn Phe	Lys			
234	239	244	249			
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Met Thr Gly Arg Tyr	Glu Met Tyr Ala Arg	Glu Leu Ala Glu Ala	Val			
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266	271	276				
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Leu	Asp	Thr	Gln	Val	Gln	Arg	Cys	Glu	Asp	Ile	Leu	Gln	Gln	Leu	Gln	
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166					171					176					181	
cca	ctg	ctt	ccg	cca	gac	aac	atg	tgg	tct	agc	cag	agg	ttc	cag	gcc	1951
Pro	Leu	Leu	Pro	Pro	Asp	Asn	Met	Trp	Ser	Ser	Gln	Arg	Phe	Gln	Ala	
182					187					192					197	
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His	Leu	Gln	Glu	Met	Gly	Ala	Pro	Asn	Ala	Trp	Ser	Thr	Ile	Ile	Val	
198					203					208					213	
cct	ggc	atg	aag	gat	gct	gtg	atc	cac	gca	ctt	cag	acc	tcc	cag	gac	2047
Pro	Gly	Met	Lys	Asp	Ala	Val	Ile	His	Ala	Leu	Gln	Thr	Ser	Gln	Asp	
214					219			</								

gtg ttc ggg gag gac ttc cag ccc tgg ctg att gag atc aac gcc agc	2143
Val Phe Gly Glu Asp Phe Gln Pro Trp Leu Ile Glu Ile Asn Ala Ser	
246 251 256 261	
ccc acg atg gca ccc tcc aca gca gtc act gcc cgg ctc tgt gct ggc	2191
Pro Thr Met Ala Pro Ser Thr Ala Val Thr Ala Arg Leu Cys Ala Gly	
262 267 272 277	
gtg caa gct gac acc ctg cgc gtg gtc att gac cgg atg ctg gac cgc	2239
Val Gln Ala Asp Thr Leu Arg Val Val Ile Asp Arg Met Leu Asp Arg	
278 283 288 293	
aac tgt gac aca gga gcc ttt gag ctc atc tat aag cag ccc gtc acc	2287
Asn Cys Asp Thr Gly Ala Phe Glu Leu Ile Tyr Lys Gln Pro Val Thr	
294 299 304 309	
act tcc cca gcc tcc aca cca agg ccc agc tgc ctt ctc ccc atg tac	2335
Thr Ser Pro Ala Ser Thr Pro Arg Pro Ser Cys Leu Leu Pro Met Tyr	
310 315 320 325	
tcc gac acc agg gcc agg tcc tca gac gac agc aca gca agc tgg tgg	2383
Ser Asp Thr Arg Ala Arg Ser Ser Asp Asp Ser Thr Ala Ser Trp Trp	
326 331 336 341	
gca cta agg ccc tgt cga cca cag gca agg cct tga ggac tctacccacg	2433
Ala Leu Arg Pro Cys Arg Pro Gln Ala Arg Pro *	
342 347 352	
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<221> CDS

<222> (138) .. (1418)

<400> 495

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tgccatctgt ctccgca atg ccc ccc aag aaa cag gct cag gcc ggg ggc 170
Met Pro Pro Lys Lys Gln Ala Gln Ala Gly Gly
1 5
agc aaa aag gcg gag caa aaa aag aag gag aag att atc gaa gac aaa 218
Ser Lys Lys Ala Glu Gln Lys Lys Lys Glu Lys Ile Ile Glu Asp Lys
12 17 22 27
act ttc ggt ttg aag aat aag aaa gga gca aag caa cag aag ttt atc 266
Thr Phe Gly Leu Lys Asn Lys Lys Gly Ala Lys Gln Gln Lys Phe Ile
28 33 38 43
aag gct gtc aca cat caa gtt aaa ttt ggt caa caa aat cca cgt cag 314
Lys Ala Val Thr His Gln Val Lys Phe Gly Gln Gln Asn Pro Arg Gln
44 49 54 59
gta gca cag agt gaa gct gaa aag aaa ttg aag aag gat gac aag aag 362
Val Ala Gln Ser Glu Ala Glu Lys Lys Leu Lys Lys Asp Asp Lys Lys
60 65 70 75
aaa gaa ttg cag gag cta aat gag ctg ttc aaa cct gta gtt gct gct 410
Lys Glu Leu Gln Glu Leu Asn Glu Leu Phe Lys Pro Val Val Ala Ala
76 81 86 91
caa aaa ata agt aaa ggt gca gat ccc aag tct gta gta tgt gca ttc 458
Gln Lys Ile Ser Lys Gly Ala Asp Pro Lys Ser Val Val Cys Ala Phe
92 97 102 107
ttc aag caa gga cag tgt act aaa gga gat aag tgt aag ttc tcc cat 506
Phe Lys Gln Gly Gln Cys Thr Lys Gly Asp Lys Cys Lys Phe Ser His
108 113 118 123
gac ttg act ctg gag aga aaa tgt gaa aag cga agt gtt tac att gat 554
Asp Leu Thr Leu Glu Arg Lys Cys Glu Lys Arg Ser Val Tyr Ile Asp
124 129 134 139
gca aga gat gaa gaa ctt gaa aaa gat act atg gat aat tgg gat gag 602
Ala Arg Asp Glu Glu Leu Glu Lys Asp Thr Met Asp Asn Trp Asp Glu
140 145 150 155
aaa aag ctg gaa gaa gta gtg aac aag aag cac ggt gag gcg gaa aag 650
Lys Lys Leu Glu Glu Val Val Asn Lys Lys His Gly Glu Ala Glu Lys
156 161 166 171
aaa aaa cca aaa act caa ata gtg tgc aag cat ttc ctg gaa gct att 698
Lys Lys Pro Lys Thr Gln Ile Val Cys Lys His Phe Leu Glu Ala Ile
172 177 182 187
gaa aac aac aag tat ggc tgg ttt tgg gta tgc cct gga ggg ggt gat 746

Glu	Asn	Asn	Lys	Tyr	Gly	Trp	Phe	Trp	Val	Cys	Pro	Gly	Gly	Gly	Asp		
188					193					198					203		
att	tgc	atg	tat	cgt	cat	gca	ctt	cct	cct	gga	ttt	gtg	ttg	aaa	aaa		794
Ile	Cys	Met	Tyr	Arg	His	Ala	Leu	Pro	Pro	Gly	Phe	Val	Leu	Lys	Lys		
204					209					214					219		
gat	aaa	aag	aaa	gaa	gag	aaa	gaa	gat	gaa	att	tca	tta	gaa	gat	cta		842
Asp	Lys	Lys	Lys	Glu	Glu	Lys	Glu	Asp	Glu	Ile	Ser	Leu	Glu	Asp	Leu		
220					225					230					235		
att	gag	aga	gag	cgt	tct	gcc	cta	ggg	cca	aat	gtt	acc	aaa	atc	act		890
Ile	Glu	Arg	Glu	Arg	Ser	Ala	Leu	Gly	Pro	Asn	Val	Thr	Lys	Ile	Thr		
236					241					246					251		
cta	gaa	tct	ttt	ctt	gcc	tgg	aag	aaa	agg	aaa	aga	caa	gaa	aag	att		938
Leu	Glu	Ser	Phe	Leu	Ala	Trp	Lys	Lys	Arg	Lys	Arg	Gln	Glu	Lys	Ile		
252					257					262					267		
gat	aaa	ctt	gaa	caa	gat	atg	gaa	aga	agg	aaa	gct	gac	ttc	aaa	gca		986
Asp	Lys	Leu	Glu	Gln	Asp	Met	Glu	Arg	Arg	Lys	Ala	Asp	Phe	Lys	Ala		
268					273					278					283		
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Gly	Lys	Ala	Leu	Val	Ile	Ser	Gly	Arg	Glu	Val	Phe	Glu	Phe	Arg	Pro		
284					289					294					299		
gaa	ctg	gtc	aat	gat	gat	gat	gag	gaa	gca	gat	gat	acc	cgc	tac	acc		1082
Glu	Leu	Val	Asn	Asp	Asp	Asp	Glu	Glu	Ala	Asp	Asp	Thr	Arg	Tyr	Thr		
300					305					310					315		
cag	gga	aca	ggg	ggg	gat	gag	gtt	gat	gat	tca	gtg	agt	gta	aat	gac		1130
Gln	Gly	Thr	Gly	Gly	Asp	Glu	Val	Asp	Asp	Ser	Val	Ser	Val	Asn	Asp		
316					321					326					331		
ata	gat	tta	agc	ctg	tac	atc	cca	aga	gat	gta	gat	gaa	aca	ggg	att		1178
Ile	Asp	Leu	Ser	Leu	Tyr	Ile	Pro	Arg	Asp	Val	Asp	Glu	Thr	Gly	Ile		
332					337					342					347		
act	gta	gcc	agt	ctt	gaa	aga	ttc	agc	aca	tat	act	tca	gat	aaa	gat		1226
Thr	Val	Ala	Ser	Leu	Glu	Arg	Phe	Ser	Thr	Tyr	Thr	Ser	Asp	Lys	Asp		
348					353					358					363		
gaa	aac	aaa	tta	agt	gaa	gct	tct	gga	ggg	agg	gct	gaa	aat	ggg	gaa		1274
Glu	Asn	Lys	Leu	Ser	Glu	Ala	Ser	Gly	Gly	Arg	Ala	Glu	Asn	Gly	Glu		
364					369					374					379		
aga	agt	gac	ttg	gaa	gag	gac	aac	gag	agg	gag	gga	acg	gaa	aat	gga		1322
Arg	Ser	Asp	Leu	Glu	Glu	Asp	Asn	Glu	Arg	Glu	Gly	Thr	Glu	Asn	Gly		
380					385					390					395		
gcc	att	gat	gct	gtt	cct	gtt	gat	gaa	aat	ctt	ttc	act	gga	gag	gat		1370
Ala	Ile	Asp	Ala	Val	Pro	Val	Asp	Glu	Asn	Leu	Phe	Thr	Gly	Glu	Asp		
396					401					406					411		
ttg	gat	gaa	cta	gaa	gaa	gaa	tta	aat	aca	ctt	gat	tta	gaa	gaa	tga		1418
Leu	Asp	Glu	Leu	Glu	Glu	Glu	Leu	Asn	Thr	Leu	Asp	Leu	Glu	Glu	*		

412

417

422

427

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1434

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<211> 2106

<212> DNA

<213> Homo sapiens

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<221> CDS

<222> (81)..(524)

<400> 496

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 Met Ala Glu Arg Pro Glu Asp Leu Asn Leu
 1 5

ccc aat gcc gtg atc acc agg atc atc aag gag gcg ctc ccg gac ggt 158
 Pro Asn Ala Val Ile Thr Arg Ile Ile Lys Glu Ala Leu Pro Asp Gly
 11 16 21 26

gtc aac atc tcc aag gag gcc cgg agc gcc atc tcc cgc gcc gcc agc 206
 Val Asn Ile Ser Lys Glu Ala Arg Ser Ala Ile Ser Arg Ala Ala Ser
 27 32 37 42

gtc ttc gtg ctg tac gcc aca tcc tgt gct aac aac ttt gca atg aaa 254
 Val Phe Val Leu Tyr Ala Thr Ser Cys Ala Asn Asn Phe Ala Met Lys
 43 48 53 58

gga aag cgg aag acg ctg aat gcc agt gat gtg ctc tca gcc atg gaa 302
 Gly Lys Arg Lys Thr Leu Asn Ala Ser Asp Val Leu Ser Ala Met Glu
 59 64 69 74

gag atg gag ttc cag cgg ttc gtt acc cca ttg aaa gaa gct ctg gaa 350
 Glu Met Glu Phe Gln Arg Phe Val Thr Pro Leu Lys Glu Ala Leu Ser
 75 80 85 90

gca tat agg cgg gag cag aaa ggc aag aag gag gcc tca gag caa aag 398
 Ala Tyr Arg Arg Glu Gln Lys Gly Lys Lys Glu Ala Ser Glu Gln Lys
 91 96 101 106

aag aag gac aaa gac aaa aaa aca gac tcg gaa gag caa gac aag agc 446
 Lys Lys Asp Lys Asp Lys Lys Thr Asp Ser Glu Glu Gln Asp Lys Ser
 107 112 117 122

agg gat gag gac aat gat gaa gac gaa gaa agg ctg gaa gaa gaa gaa 494
 Arg Asp Glu Asp Asn Asp Glu Asp Glu Glu Arg Leu Glu Glu Glu Glu
 123 128 133 138

cag aat gaa gag gaa gaa gta tac aac tga a aagggcggga gactgtggca 545
 Gln Asn Glu Glu Glu Glu Val Tyr Asn *

139

144

ccttggaagg	taccacttga	aatgagacgt	gctacgtggt	tctgtgaagc	ttttccatgc	605
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taccgtcaaa	accagcactt	accaaactca	gagcatctga	gtagcagaat	cctgttttgc	725
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cctaaacat	cctctttaac	tgcttctaaa	atatctctgt	tgccctttct	tagccttttt	1925
ctgtttccat	tcagtgtctc	aagcgctttt	tgthtctaag	ttgagtgtct	ggggthtgac	1985
aggtagtgc	gtgtagthtg	acactgttaa	cttgthtaaat	acagtgaata	gtthgtgagt	2045
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 <222> (97)..(606)

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 Met Leu Pro Asn Thr Gly
 1
 agg ctg gca gga tgt aca gtt ttt atc aca ggt gca agc cgt ggc att 162
 Arg Leu Ala Gly Cys Thr Val Phe Ile Thr Gly Ala Ser Arg Gly Ile
 7 12 17 22
 ggc aaa gct att gca ttg aaa gca gca aag gat gga gca aat att gtt 210
 Gly Lys Ala Ile Ala Leu Lys Ala Ala Lys Asp Gly Ala Asn Ile Val
 23 28 33 38
 att gct gca aag acc gcc cag cca cat cca aaa ctt cta ggc aca atc 258
 Ile Ala Ala Lys Thr Ala Gln Pro His Pro Lys Leu Leu Gly Thr Ile
 39 44 49 54
 tat act gct gct gaa gaa att gaa gca gtt gga gga aag gcc ttg cca 306
 Tyr Thr Ala Ala Glu Glu Ile Glu Ala Val Gly Gly Lys Ala Leu Pro
 55 60 65 70
 tgt att gtt gat gtg aga gat gaa cag cag atc agt gct gca gtg gag 354
 Cys Ile Val Asp Val Arg Asp Glu Gln Gln Ile Ser Ala Ala Val Glu
 71 76 81 86
 aaa gcc atc aag aaa ttt gga gga att gat att ctg gta aat aat gcc 402
 Lys Ala Ile Lys Lys Phe Gly Gly Ile Asp Ile Leu Val Asn Asn Ala
 87 92 97 102
 agt gcc att agt ttg acc aat aca ttg gac aca cct acc aag aga ttg 450
 Ser Ala Ile Ser Leu Thr Asn Thr Leu Asp Thr Pro Thr Lys Arg Leu
 103 108 113 118
 gat ctg atg atg aac gtg aac acc aga ggc acc tac ctt gca tct aaa 498
 Asp Leu Met Met Asn Val Asn Thr Arg Gly Thr Tyr Leu Ala Ser Lys
 119 124 129 134
 gca tgt att cct tat ttg aaa aag agc aaa gtt gct cat atc ctc aat 546
 Ala Cys Ile Pro Tyr Leu Lys Lys Ser Lys Val Ala His Ile Leu Asn
 135 140 145 150
 atc agt cca cca ctg aac cta aat cca gtt tgg ttc aaa cag cac tgt 594
 Ile Ser Pro Pro Leu Asn Leu Asn Pro Val Trp Phe Lys Gln His Cys
 151 156 161 166

ggg agg tgg tag gtg gtaggggtgag gggatgggtt gtgcttaatt tgttttgaat 649
 Gly Arg Trp *
 167

taaatctgtg tatgtctgat gtaatcacia tctgcacata acattcatca ttgaattttc 709
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 gagttttgag aaatgtatat aaccaacacc caaatcaaga tacagatttt taccattttca 889
 gaaagctctt tcatttccca atgagtgtgt tttactgtgt gtaatttatt catctataaa 949
 gttgggttaa aactatctat gagatacttt atttttctta gacaggtatg cacctgtagt 1009
 cctagctact tgaaaggctg aggtgggagg atcgcttgag cccaggagtt tgaggctgoa 1069
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 <212> DNA
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 <222> (762) .. (956)

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 aagccctctt caaggagcat gagctgaaat tgctaaactt tgggagtttt ccgtgacacc 180
 cttcaaagtg ctcacggtgt ggcattggtc agctggggag ggttgatgtg gttttgccct 240
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 caaccgtcat tgtctgttct tgccatccag tggccactgc ctccaccatg gctgaggctt 540
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 tgacggccca gaagcagaag aagtgagggc ttcgaggctc ccgtaggcgc catgccaaca 660

gcggcggaga tatcttcggg gacagctttg ccgcctatctt cccccgggtg ctgaagcagg 720

ttcaccaggc cctcagcctt tcccaggagg ccgtgagtgt c atg gat tct atg 773
Met Asp Ser Met
1

gtt cgt gac ata ctg gac cgc atc gcc acc gag gct ggt cac ctg gcc 821
Val Arg Asp Ile Leu Asp Arg Ile Ala Thr Glu Ala Gly His Leu Ala
5 10 15 20

cac tac tcc aag tgc gtg acc atc acc tcc cgg gac att cgg atg gcc 869
His Tyr Ser Lys Cys Val Thr Ile Thr Ser Arg Asp Ile Arg Met Ala
21 26 31 36

gtg tgc ctg ctg ctg ccg ggg aag atg ggc aag ctc gct gag tct cag 917
Val Cys Leu Leu Leu Pro Gly Lys Met Gly Lys Leu Ala Glu Ser Gln
37 42 47 52

ggc acg aat gcc acc ctc agg tac acc aaa agc aag tga gctatctcag 966
Gly Thr Asn Ala Thr Leu Arg Tyr Thr Lys Ser Lys *
53 58 63

gagcgcgccga gcacccggga aagccaaatg ctctgttcag aaccaccaca cgtggcccta 1026

aagaccagtg gcctgccaag gaggggaccc cactggagat tgggggtgggt ggcaccgttc 1086

tggcttgggg agcatgtggc gtgtggcctt ctgcggtttt tcaagcattt tccccacagt 1146

gcaaaacact gtcaactcca atacatctgt agtgcaatat gctccaagga aaagtagggg 1206

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<213> Homo sapiens

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<222> (710)..(1585)

<400> 499

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ccaagtggat cagcctgctg aactgtcggc taggggtata ggtggttctg agtccttccg 180

gaagctgccg aatcttagaa gtcgcgccac tgttgtggcg atggaagaag gcgaagctct 240

acagaaacca ttttggttga gggaagagtg gttttaaaagt taatttggaa aggagccggc 300

aagcaacctt cagtcggtgt gcggttttta cagttgaact gtttccagcc gctaattatg 360
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accagtgaag cgtctaaggg accatcttgg ttgagggcgg aagtgaggac tgtgtcgcgc 660
tggaggagcc cacagattct cccggaccca cgtggaagcg gcactcaag atg ctg 715
Met Leu
1

cgc cgc gag gcc cgc ctg cgc cgc gag tac ctg tac cgc aag gcc cgg 763
Arg Arg Glu Ala Arg Leu Arg Arg Glu Tyr Leu Tyr Arg Lys Ala Arg
3 8 13 18

gag gag gcg cag cgc tca gcc cag gag agg aag gag cgg ctg cgg cgc 811
Glu Glu Ala Gln Arg Ser Ala Gln Glu Arg Lys Glu Arg Leu Arg Arg
19 24 29 34

gcg ctg gaa gaa aac cgc ctg att ccc act gag tta cgc cga gag gct 859
Ala Leu Glu Glu Asn Arg Leu Ile Pro Thr Glu Leu Arg Arg Glu Ala
35 40 45 50

ctg gcc tta cag ggg tcc ctg gag ttt gat gat gct gga ggt gaa ggt 907
Leu Ala Leu Gln Gly Ser Leu Glu Phe Asp Asp Ala Gly Gly Glu Gly
51 56 61 66

gtg acc agc cac gtg gat gat gaa tac cga tgg gca gga gtc gag gat 955
Val Thr Ser His Val Asp Asp Glu Tyr Arg Trp Ala Gly Val Glu Asp
67 72 77 82

ccc aag gtt atg atc act acc tcc cga gac ccc agt tcc cgc ctc aag 1003
Pro Lys Val Met Ile Thr Thr Ser Arg Asp Pro Ser Ser Arg Leu Lys
83 88 93 98

atg ttt gca aag gag ctg aag ctg gtg ttc ccg ggc gcc cag cga atg 1051
Met Phe Ala Lys Glu Leu Lys Leu Val Phe Pro Gly Ala Gln Arg Met
99 104 109 114

aac cga ggt cga cat gaa gtg ggg gca ctg gtg cga gcc tgc aaa gcc 1099
Asn Arg Gly Arg His Glu Val Gly Ala Leu Val Arg Ala Cys Lys Ala
115 120 125 130

aac ggc gtc acc gat ctg ctg gtc gtt cac gag cat cgg ggc aca cct 1147
Asn Gly Val Thr Asp Leu Leu Val Val His Glu His Arg Gly Thr Pro
131 136 141 146

gtg ggg ctc atc gtc agc cac ctg ccc ttt ggt cct act gcc tac ttc 1195
Val Gly Leu Ile Val Ser His Leu Pro Phe Gly Pro Thr Ala Tyr Phe
147 152 157 162

acg ctg tgc aat gtg gtc atg cgg cat gac atc cca gac ctg ggc acc	1243
Thr Leu Cys Asn Val Val Met Arg His Asp Ile Pro Asp Leu Gly Thr	
163 168 173 178	
atg tcg gag gcc aag ccc cac ctc atc aca cac ggc ttc tcc tcc cgc	1291
Met Ser Glu Ala Lys Pro His Leu Ile Thr His Gly Phe Ser Ser Arg	
179 184 189 194	
ctg ggc aag cgg gtc tct gac atc ctc cga tac cta ttt ccc gtg ccc	1339
Leu Gly Lys Arg Val Ser Asp Ile Leu Arg Tyr Leu Phe Pro Val Pro	
195 200 205 210	
aaa gat gac agc cac cgg gtc atc acc ttc gca aac cag gac gac tac	1387
Lys Asp Asp Ser His Arg Val Ile Thr Phe Ala Asn Gln Asp Asp Tyr	
211 216 221 226	
ata tca ttc cgg cac cat gtg tat aag aag aca gac cac cgc aac gtg	1435
Ile Ser Phe Arg His His Val Tyr Lys Lys Thr Asp His Arg Asn Val	
227 232 237 242	
gag ctc act gag gtc ggg ccc cgc ttt gag ctg aag ctg tac atg atc	1483
Glu Leu Thr Glu Val Gly Pro Arg Phe Glu Leu Lys Leu Tyr Met Ile	
243 248 253 258	
cgt ctg ggc acg ctg gag cag gag gcc aca gca gac gtg gag tgg cgc	1531
Arg Leu Gly Thr Leu Glu Gln Glu Ala Thr Ala Asp Val Glu Trp Arg	
259 264 269 274	
tgg cac cct tac acc aat acc gca cgc aag aga gtc ttc ctg agc acc	1579
Trp His Pro Tyr Thr Asn Thr Ala Arg Lys Arg Val Phe Leu Ser Thr	
275 280 285 290	
gag tga gcacactcac cactcagtca ggacatggac ttggaactca ggatggggct	1635
Glu *	
291	
gtcatagaca gaccaccag taggaactgt cacagaatgg cctgctgaac tgggatgtgg	1695
aactgtggcg ggtggagagg tctgaataaa ccgtctgtgt catggcaaaa aaaaaa	1751

<210> 500
 <211> 1033
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (156)..(905)

<220>
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gnccaaactc tgttgaccac cgtgaagttc aggtcttaag ccaaagcatg ccactcactc 120
cgcaccaggc agtncctagt ggagagaggc cctac atg tgt gtt gag tgt ggg 173
Met Cys Val Glu Cys Gly
1
aag tgc ttt ggc cgg agt tcc cac ctc ctt cag cat cag cgt atc cac 221
Lys Cys Phe Gly Arg Ser Ser His Leu Leu Gln His Gln Arg Ile His
7 12 17 22
act gga gag aag ccc tat gtg tgc agt gta tgt ggg aag gcc ttc agc 269
Thr Gly Glu Lys Pro Tyr Val Cys Ser Val Cys Gly Lys Ala Phe Ser
23 28 33 38
cag agc tca gtc ctt agt aaa cac agg aga att cac aca ggt gag aag 317
Gln Ser Ser Val Leu Ser Lys His Arg Arg Ile His Thr Gly Glu Lys
39 44 49 54
ccc tat gag tgt aat gag tgt gga aaa gcc ttt aga gtg agc tca gat 365
Pro Tyr Glu Cys Asn Glu Cys Gly Lys Ala Phe Arg Val Ser Ser Asp
55 60 65 70
ctt gct cag cat cac aag ata cat aca gga gag aag cct cac gaa tgt 413
Leu Ala Gln His His Lys Ile His Thr Gly Glu Lys Pro His Glu Cys
71 76 81 86
ctt gag tgt cgg aaa gcc ttc act caa ctc tca cat ctc att cag cac 461
Leu Glu Cys Arg Lys Ala Phe Thr Gln Leu Ser His Leu Ile Gln His
87 92 97 102
cag cgg atc cac acg gga gaa agg cca tat gtg tgt ccg ttg tgt ggg 509
Gln Arg Ile His Thr Gly Glu Arg Pro Tyr Val Cys Pro Leu Cys Gly
103 108 113 118
aaa gcc ttc aac cat agc act gtt ctg cgg agc cac cag agg gta cac 557
Lys Ala Phe Asn His Ser Thr Val Leu Arg Ser His Gln Arg Val His
119 124 129 134
act ggg gag aag cct cac agg tgc aat gag tgt ggg aaa acc ttc agt 605
Thr Gly Glu Lys Pro His Arg Cys Asn Glu Cys Gly Lys Thr Phe Ser
135 140 145 150
gtg aag agg aca ctg ctg cag cac cag agg atc cac acc ggg gag aag 653
Val Lys Arg Thr Leu Leu Gln His Gln Arg Ile His Thr Gly Glu Lys
151 156 161 166
ccc tac acg tgc agc gag tgt ggg aag gcc ttc agc gac cgc tca gtc 701
Pro Tyr Thr Cys Ser Glu Cys Gly Lys Ala Phe Ser Asp Arg Ser Val
167 172 177 182
ctc att cag cac cac aac gtg cac acc ggg gag aag ccc tat gag tgc 749
Leu Ile Gln His His Asn Val His Thr Gly Glu Lys Pro Tyr Glu Cys
183 188 193 198

26	31	36	41	
cgg cgg ctg ggt gtg gcg gag agt tgg acg cgc gac cgg cac tgt gcc				615
Arg Arg Leu Gly Val Ala Glu Ser Trp Thr Arg Asp Arg His Cys Ala				
42	47	52	57	
gcc gac ctc gcc ctg gcc ccg ctg ggg gat gcc caa ctg gtc ctg ctc				663
Ala Asp Leu Ala Leu Ala Pro Leu Gly Asp Ala Gln Leu Val Leu Leu				
58	63	68	73	
cgg cca cgg cgg ctt atg aac gcc aac ggg cgc agc gtg gcc cgg gct				711
Arg Pro Arg Arg Leu Met Asn Ala Asn Gly Arg Ser Val Ala Arg Ala				
74	79	84	89	
gcg gag ctg ttt ggg ctg act gcc gag gaa gtc tac ctg gtg cat gat				759
Ala Glu Leu Phe Gly Leu Thr Ala Glu Glu Val Tyr Leu Val His Asp				
90	95	100	105	
gag ctg gac aag ccc ctg ggg aga ctg gct ctg aag ctg ggg ggc agt				807
Glu Leu Asp Lys Pro Leu Gly Arg Leu Ala Leu Lys Leu Gly Gly Ser				
106	111	116	121	
gcc agg ggc cac aat gga gtc cgt tcc tgc att agc tgc ctc aac tcc				855
Ala Arg Gly His Asn Gly Val Arg Ser Cys Ile Ser Cys Leu Asn Ser				
122	127	132	137	
aat gca atg cca agg ctg cgg gtg ggt atc ggg cgc ccg gcg cac cct				903
Asn Ala Met Pro Arg Leu Arg Val Gly Ile Gly Arg Pro Ala His Pro				
138	143	148	153	
gag gcg gtt cag gcc cat gtg ctg ggc tgc ttc tcc cct gct gag cag				951
Glu Ala Val Gln Ala His Val Leu Gly Cys Phe Ser Pro Ala Glu Gln				
154	159	164	169	
gag ctg ctg cct ctg ttg ctg gat cga gcc acc gac ctg atc ttg gac				999
Glu Leu Leu Pro Leu Leu Leu Asp Arg Ala Thr Asp Leu Ile Leu Asp				
170	175	180	185	
cac atc cgt gag cga agc cag ggg ccc tca ctg ggg ccg tga cactagt				1048
His Ile Arg Glu Arg Ser Gln Gly Pro Ser Leu Gly Pro *				
186	191	196		
ggccatggct gcctgcctga ctgtagtgcc caccaacca gccactgcca cagagctgcc				1108
acgccagcct tggtatctac tttttataca aatctcctct agactgttcc aggctgcctg				1168
cggattaaag tgggggtgac tgtgaaaaaa aaaaaa				1204

<210> 502
 <211> 2208
 <212> DNA
 <213> Homo sapiens
 <220>

<221> CDS

<222> (88) .. (1956)

<400> 502

cgatatattcc gggcagaccc acgcagccgg tccggacagc cgcgcgctga ggggtctcggg 60

gcggggcgccg cgggacctct ccggggcc atg gca gcc cct gtc aaa ggg aac 111
Met Ala Ala Pro Val Lys Gly Asn
1 5

agg aag cag tcc acg gag ggt gac gcc cta gac cca cct gca tcc ccc 159
Arg Lys Gln Ser Thr Glu Gly Asp Ala Leu Asp Pro Pro Ala Ser Pro
9 14 19 24

aaa cct gct ggc aag cag aac gga atc cag aac ccc atc tcg ctg gag 207
Lys Pro Ala Gly Lys Gln Asn Gly Ile Gln Asn Pro Ile Ser Leu Glu
25 30 35 40

gac tcc ccc gag gca ggc ggg gag cgg gag gag gag cag gag cgg gag 255
Asp Ser Pro Glu Ala Gly Gly Glu Arg Glu Glu Glu Gln Glu Arg Glu
41 46 51 56

gag gag cag gcc ttc ctg gtc agc ctc tac aag ttc atg aag gag cga 303
Glu Glu Gln Ala Phe Leu Val Ser Leu Tyr Lys Phe Met Lys Glu Arg
57 62 67 72

cac acg ccc atc gag agg gtg ccc cat ctc ggc ttc aag cag att aac 351
His Thr Pro Ile Glu Arg Val Pro His Leu Gly Phe Lys Gln Ile Asn
73 78 83 88

ctg tgg aag atc tac aaa gca gtg gag aag ctg ggg gcc tat gag ctg 399
Leu Trp Lys Ile Tyr Lys Ala Val Glu Lys Leu Gly Ala Tyr Glu Leu
89 94 99 104

gtg acc ggg cgc cgc ctc tgg aag aac gtg tac gac gag ctg ggg ggc 447
Val Thr Gly Arg Arg Leu Trp Lys Asn Val Tyr Asp Glu Leu Gly Gly
105 110 115 120

agc cca ggc agc acc agc gcg gcc acg tgc acg cgc cgc cac tac gag 495
Ser Pro Gly Ser Thr Ser Ala Ala Thr Cys Thr Arg Arg His Tyr Glu
121 126 131 136

agg ctg gtc ctg cca tac gtg cgg cac ctg aag ggg gag gat gac aag 543
Arg Leu Val Leu Pro Tyr Val Arg His Leu Lys Gly Glu Asp Asp Lys
137 142 147 152

ccg ctg ccc acc tcc aag ccc agg aaa cag tac aag atg gct aag gag 591
Pro Leu Pro Thr Ser Lys Pro Arg Lys Gln Tyr Lys Met Ala Lys Glu
153 158 163 168

aac agg ggg gat gat ggg gcc acc gag agg ccg aag aag gcc aag gag 639
Asn Arg Gly Asp Asp Gly Ala Thr Glu Arg Pro Lys Lys Ala Lys Glu
169 174 179 184

gag cgg cgc atg gac cag atg atg cca gga aag acc aaa gca gat gct 687
Glu Arg Arg Met Asp Gln Met Met Pro Gly Lys Thr Lys Ala Asp Ala
185 190 195 200

gct gac cca gca cca ctt ccc agc cag gag ccc ccc agg aac agc aca	735
Ala Asp Pro Ala Pro Leu Pro Ser Gln Glu Pro Pro Arg Asn Ser Thr	
201 206 211 216	
gaa cag cag ggc ctg gcc tct ggg tct tct gtg tcc ttt gtg ggt gcc	783
Glu Gln Gln Gly Leu Ala Ser Gly Ser Ser Val Ser Phe Val Gly Ala	
217 222 227 232	
agc ggc tgt cct gag gcc tac aag cgg ctc cta tcc agc ttc tac tgc	831
Ser Gly Cys Pro Glu Ala Tyr Lys Arg Leu Leu Ser Ser Phe Tyr Cys	
233 238 243 248	
aag ggg aca cac ggc atc atg tca cca ctg gcc aaa ^h aag aag ctc ctg	879
Lys Gly Thr His Gly Ile Met Ser Pro Leu Ala Lys Lys Lys Leu Leu	
249 254 259 264	
gcc cag gtg agc aag gtg gag gcc ttg cag tgc cag gag gag ggc tgc	927
Ala Gln Val Ser Lys Val Glu Ala Leu Gln Cys Gln Glu Glu Gly Cys	
265 270 275 280	
cgc cat ggg gca gag ccc cag gcg tcc cca gct gtt cac ctc cca gag	975
Arg His Gly Ala Glu Pro Gln Ala Ser Pro Ala Val His Leu Pro Glu	
281 286 291 296	
agt ccc cag agc ccc aaa ggg ctg act gag aac tcc agg cac cgg ctg	1023
Ser Pro Gln Ser Pro Lys Gly Leu Thr Glu Asn Ser Arg His Arg Leu	
297 302 307 312	
acc cct cag gag gga ttg cag gcc cca ggt ggc agc ctc aga gag gag	1071
Thr Pro Gln Glu Gly Leu Gln Ala Pro Gly Gly Ser Leu Arg Glu Glu	
313 318 323 328	
gcg cag gca ggc ccc tgc ccg gca gcc ccc atc ttc aag ggc tgc ttc	1119
Ala Gln Ala Gly Pro Cys Pro Ala Ala Pro Ile Phe Lys Gly Cys Phe	
329 334 339 344	
tac acc cac ccc acc gag gtg ctg aag cct gtc agc cag cac ccc agg	1167
Tyr Thr His Pro Thr Glu Val Leu Lys Pro Val Ser Gln His Pro Arg	
345 350 355 360	
gac ttc ttc tct aga ctt aaa gat ggg gtg cta ttg ggg cct cct ggc	1215
Asp Phe Phe Ser Arg Leu Lys Asp Gly Val Leu Leu Gly Pro Pro Gly	
361 366 371 376	
aaa gag ggg ctg tca gtg aaa gag ccc cag ctg gtg tgg ggc gga gac	1263
Lys Glu Gly Leu Ser Val Lys Glu Pro Gln Leu Val Trp Gly Gly Asp	
377 382 387 392	
gct aac cgc cct tct gcg ttc cat aaa ggt ggc tcc aga aag ggc atc	1311
Ala Asn Arg Pro Ser Ala Phe His Lys Gly Gly Ser Arg Lys Gly Ile	
393 398 403 408	
ctc tac ccc aag ccc aaa gcc tgc tgg gtg tcc ccc atg gcc aag gtc	1359
Leu Tyr Pro Lys Pro Lys Ala Cys Trp Val Ser Pro Met Ala Lys Val	
409 414 419 424	

cca gcc gag agc ccc acg ctc ccg ccc acc ttc ccc agt agc cca ggc	1407
Pro Ala Glu Ser Pro Thr Leu Pro Pro Thr Phe Pro Ser Ser Pro Gly	
425 430 435 440	
ctg ggc agc aag cgc agc ctg gag gaa gag ggt gct gcc cac agt ggg	1455
Leu Gly Ser Lys Arg Ser Leu Glu Glu Glu Gly Ala Ala His Ser Gly	
441 446 451 456	
aag aga ctg cgg gcc gtg tct ccc ttt ctt aag gag gcg gat gcc aag	1503
Lys Arg Leu Arg Ala Val Ser Pro Phe Leu Lys Glu Ala Asp Ala Lys	
457 462 467 472	
aag tgt ggg gcc aaa cct gca ggg tcc ggc ctg gtc tcc tgc ctt ctg	1551
Lys Cys Gly Ala Lys Pro Ala Gly Ser Gly Leu Val Ser Cys Leu Leu	
473 478 483 488	
ggc cca gcc ctg ggg cct gtg ccc cca gag gcc tac agg ggc acc atg	1599
Gly Pro Ala Leu Gly Pro Val Pro Pro Glu Ala Tyr Arg Gly Thr Met	
489 494 499 504	
ctg cac tgc ccg ctg aac ttc act ggc acc ccg ggc ccc ttg aag ggc	1647
Leu His Cys Pro Leu Asn Phe Thr Gly Thr Pro Gly Pro Leu Lys Gly	
505 510 515 520	
cag gct gca ctc ccc ttc agc ccc ctg gtc atc ccg gcc ttc ccg gcc	1695
Gln Ala Ala Leu Pro Phe Ser Pro Leu Val Ile Pro Ala Phe Pro Ala	
521 526 531 536	
cac ttc ctg gcc acc gca ggg ccc ctc gcc cat ggc cgc tgg cct gat	1743
His Phe Leu Ala Thr Ala Gly Pro Leu Ala His Gly Arg Trp Pro Asp	
537 542 547 552	
gca ctt ccc ccc aac gtc ctt cga cag tgc cct ccg cca cag act ttg	1791
Ala Leu Pro Pro Asn Val Leu Arg Gln Cys Pro Pro Pro Gln Thr Leu	
553 558 563 568	
ccc ggc ctc atc tgc ctg gca cgc acc acc agt cac aac cta tgc agc	1839
Pro Gly Leu Ile Cys Leu Ala Arg Thr Thr Ser His Asn Leu Cys Ser	
569 574 579 584	
gcc cca ctt ctt cca cct caa cac caa gct gta ggc cag ccc atg gtg	1887
Ala Pro Leu Leu Pro Pro Gln His Gln Ala Val Gly Gln Pro Met Val	
585 590 595 600	
ttg tgt aca ctg tgg agt cga cag ggg cct aca aca ggc agg tac tgc	1935
Leu Cys Thr Leu Trp Ser Arg Gln Gly Pro Thr Thr Gly Arg Tyr Cys	
601 606 611 616	
tgc cag ggg gct ctg aac tag tg cctgctaccc aggacacccg ggccatgccc	1988
Cys Gln Gly Ala Leu Asn *	
617 622	
ctggctgggc agcctggcac aagtgaagaa gaaggcagtg ggaaaactgg gtttatctca	2048
aggcagcagc ctgagcccag gagcagagga cccagttgtt ataaggcgct gggagaggat	2108
gggcagctcc cactgcccga gaggcgagct cgaagcacc aggttgccca cggaaaatcc	2168

aataaaaaga caccagtgtg aatccaaaaa aaaaaaaaaa

2208

<210> 503
<211> 1282
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (266) .. (793)

<400> 503

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tocactagtc cagtgtggtg gaattcccaa gacgagcgcg gtcgcggaag tatcgcggtc	120
tacatatctc gcagccaggc gggctctggg agaggcgcga gccaggcctg gtcggcgccc	180
gcggagaaaa gaagcagtca agcccatgaa ctacaacccc ggttgccgct ttctcctctc	240
ctaaccgtta agtgcgctaa gggcc atg gct gag gtg cac gtg atc ggg cag	292
Met Ala Glu Val His Val Ile Gly Gln	
1 5	
atc ata ggg gcc agc ggt ttc tcg gaa agt agc ctc ttc tgc aag tgg	340
Ile Ile Gly Ala Ser Gly Phe Ser Glu Ser Ser Leu Phe Cys Lys Trp	
10 15 20 25	
ggc att cac aca ggg gcg gca tgg aag ctc ctg tca ggc gtg cgg gag	388
Gly Ile His Thr Gly Ala Ala Trp Lys Leu Leu Ser Gly Val Arg Glu	
26 31 36 41	
ggc caa acg caa gtg gac acc ccg cag ata ggg gac atg gct tac tgg	436
Gly Gln Thr Gln Val Asp Thr Pro Gln Ile Gly Asp Met Ala Tyr Trp	
42 47 52 57	
tcc cac ccc atc gac ctg cac ttc gcc acc aaa ggt ctt caa ggc tgg	484
Ser His Pro Ile Asp Leu His Phe Ala Thr Lys Gly Leu Gln Gly Trp	
58 63 68 73	
ccc cgg ctc cat ttc cag gtg tgg tcc cag gac agc ttt ggc cgc tgc	532
Pro Arg Leu His Phe Gln Val Trp Ser Gln Asp Ser Phe Gly Arg Cys	
74 79 84 89	
cag ctt gca ggc tat gga ttt tgc cat gtg ccc agt agc ccg ggc acc	580
Gln Leu Ala Gly Tyr Gly Phe Cys His Val Pro Ser Ser Pro Gly Thr	
90 95 100 105	
cac cag ctg gcc tgc ccc acg tgg cgg ccc ctg ggc agt tgg cga gaa	628
His Gln Leu Ala Cys Pro Thr Trp Arg Pro Leu Gly Ser Trp Arg Glu	
106 111 116 121	
cag ttg gca cgg gct ttc gtg ggt ggt ggg ccg cag ctg ctg cat ggg	676

agg cca gcc ctg gtt ccc tgc tgc agc cac cgt cct gac gtt cat cgg	330
Arg Pro Ala Leu Val Pro Cys Cys Ser His Arg Pro Asp Val His Arg	
21 26 31 36	
agc agg ccg ggg cct ggc ctt ccc ggc aca gga ggc tgt tct gac agg	378
Ser Arg Pro Gly Pro Gly Leu Pro Gly Thr Gly Gly Cys Ser Asp Arg	
37 42 47 52	
ccc cca gct tgt ccc atc tga t	400
Pro Pro Ala Cys Pro Ile *	
53 58	

<210> 505
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 <212> DNA
 <213> Homo sapiens

 <220>
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 <222> (77)..(775)

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gcgggcccggg acgggc atg gcc ctg ctg ctg tgc ctg gtg tgc ctg acg	109
Met Ala Leu Leu Leu Cys Leu Val Cys Leu Thr	
1 5	
gcg gcg ctg gcc cac ggc tgt ctg cac tgc cac agc aac ttc tcc aag	157
Ala Ala Leu Ala His Gly Cys Leu His Cys His Ser Asn Phe Ser Lys	
12 17 22 27	
aag ttc tcc ttc tac cgc cac cat gtg aac ttc aag tcc tgg tgg gtg	205
Lys Phe Ser Phe Tyr Arg His His Val Asn Phe Lys Ser Trp Trp Val	
28 33 38 43	
ggc gac atc ccc gtg tca ggg gcg ctg ctc acc gac tgg agc gac gac	253
Gly Asp Ile Pro Val Ser Gly Ala Leu Leu Thr Asp Trp Ser Asp Asp	
44 49 54 59	
acg atg aag gag ctg cac ctg gcc atc ccc gcc aag atc acc cgg gag	301
Thr Met Lys Glu Leu His Leu Ala Ile Pro Ala Lys Ile Thr Arg Glu	
60 65 70 75	
aag ctg gac caa gtg gcg aca gca gtg tac cag atg atg gat cag ctg	349
Lys Leu Asp Gln Val Ala Thr Ala Val Tyr Gln Met Met Asp Gln Leu	
76 81 86 91	
tac cag ggg aag atg tac ttc ccc ggg tat ttc ccc aac gag ctg cga	397
Tyr Gln Gly Lys Met Tyr Phe Pro Gly Tyr Phe Pro Asn Glu Leu Arg	
92 97 102 107	

ccgggtcgtc tactactact aaattcgcgg ccggtcgacg tgtgctgttg aaggggggag 120

actagagaa atg gca ggg aac ctc tta tcc ggg gca ggt agg cgc ctg 168
Met Ala Gly Asn Leu Leu Ser Gly Ala Gly Arg Arg Leu
1 5 10

tgg gac tgg gtg cct ctg gcg tgc aga agc ttc tct ctt ggt gtg cct 216
Trp Asp Trp Val Pro Leu Ala Cys Arg Ser Phe Ser Leu Gly Val Pro
14 19 24 29

aga ttg atc ggt ata agg ctc act ctc ccg ccc ccc aaa gtg gtt gat 264
Arg Leu Ile Gly Ile Arg Leu Thr Leu Pro Pro Pro Lys Val Val Asp
30 35 40 45

cgt tgg aac gag aaa agg gcc atg ttc gga gtg tat gac aac atc ggg 312
Arg Trp Asn Glu Lys Arg Ala Met Phe Gly Val Tyr Asp Asn Ile Gly
46 51 56 61

atc ctg gga aac ttt gaa aag cac ccc aaa gaa ctg atc agg ggg ccc 360
Ile Leu Gly Asn Phe Glu Lys His Pro Lys Glu Leu Ile Arg Gly Pro
62 67 72 77

ata tgg ctt cga ggt tgg aaa ggg aat gaa ttg caa cgt tgt atc cga 408
Ile Trp Leu Arg Gly Trp Lys Gly Asn Glu Leu Gln Arg Cys Ile Arg
78 83 88 93

aag agg aaa atg gtt gga agt aga ata ttc gct gat gac ctg cac aac 456
Lys Arg Lys Met Val Gly Ser Arg Ile Phe Ala Asp Asp Leu His Asn
94 99 104 109

ctt aat aaa cgc atc cgc tat ctc tac aaa cac ttt aac cga cat ggg 504
Leu Asn Lys Arg Ile Arg Tyr Leu Tyr Lys His Phe Asn Arg His Gly
110 115 120 125

aag ttt cga tag aag agaaagctga gaacttcgga aaagggtcat ctgtcaccct 559
Lys Phe Arg *

126

ggagaaggga aactgtactt ttccctgtga ggaaacggct ttgtattttc tctgtaataa 619

aatggggctt ctttggaataa aaaaaaaaaa 649

<210> 507
<211> 1861
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (186)..(1832)

<400> 507
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Thr Val Tyr Val Thr Asp Cys Arg Val Ser Thr Ser Ala Phe Ser Lys	
207 212 217 222	
gcc ggc atg tgc ctt cgc tgc tca gcc tgt gcc ttg aac tcg gtg gtg	899
Ala Gly Met Cys Leu Arg Cys Ser Ala Cys Ala Leu Asn Ser Val Val	
223 228 233 238	
cag agc gtg ctg agc aag cgg aca ctg cag gcc cgc agc atg cac gag	947
Gln Ser Val Leu Ser Lys Arg Thr Leu Gln Ala Arg Ser Met His Glu	
239 244 249 254	
gtc atc gag ctg ctc aac gtg tgc gag gac ctg gcg ggc tcc acg ggc	995
Val Ile Glu Leu Leu Asn Val Cys Glu Asp Leu Ala Gly Ser Thr Gly	
255 260 265 270	
ctg gcc aag gag acc ttc ggg tcg ctg gag gag acg tct cca cca ccc	1043
Leu Ala Lys Glu Thr Phe Gly Ser Leu Glu Glu Thr Ser Pro Pro Pro	
271 276 281 286	
tgc tgg aac tcg gtg acg gac tca ctg ttg ctg gtg cat gag cgc tat	1091
Cys Trp Asn Ser Val Thr Asp Ser Leu Leu Leu Val His Glu Arg Tyr	
287 292 297 302	
gag cag atc tgc gag ttc tac agc cgg gcc aag aag atg aac ctc atc	1139
Glu Gln Ile Cys Glu Phe Tyr Ser Arg Ala Lys Lys Met Asn Leu Ile	
303 308 313 318	
cag agc ctc aac aag cac ctg ctc agc aac ctg gcg gcc atc ctg acg	1187
Gln Ser Leu Asn Lys His Leu Leu Ser Asn Leu Ala Ala Ile Leu Thr	
319 324 329 334	
ccg gtg aag cag gca gtc atc gag ctg agc aac gag agc cag ccc acc	1235
Pro Val Lys Gln Ala Val Ile Glu Leu Ser Asn Glu Ser Gln Pro Thr	
335 340 345 350	
ctg cag ctg gtg ctg ccc acc tac gtc agg ctg gag aag ctg ttc acg	1283
Leu Gln Leu Val Leu Pro Thr Tyr Val Arg Leu Glu Lys Leu Phe Thr	
351 356 361 366	
gcc aag gcc aac gac gca ggc act gtc agc aag ctc tgc cac ctc ttc	1331
Ala Lys Ala Asn Asp Ala Gly Thr Val Ser Lys Leu Cys His Leu Phe	
367 372 377 382	
ctg gag gcg ctc aag gag aac ttc aag gtg cac ccg gcc cac aag gtg	1379
Leu Glu Ala Leu Lys Glu Asn Phe Lys Val His Pro Ala His Lys Val	
383 388 393 398	
gcc atg atc ctg gac ccg cag cag aag ctg cgg cct gtg cca ccc tac	1427
Ala Met Ile Leu Asp Pro Gln Gln Lys Leu Arg Pro Val Pro Pro Tyr	
399 404 409 414	
cag cac gag gag atc atc ggc aag gtc tgt gag ctc atc aac gag gtg	1475
Gln His Glu Glu Ile Ile Gly Lys Val Cys Glu Leu Ile Asn Glu Val	
415 420 425 430	
aag gag tcc tgg gcc gag gag gcc gac ttc gag ccc gct gcc aag aag	1523
Lys Glu Ser Trp Ala Glu Glu Ala Asp Phe Glu Pro Ala Ala Lys Lys	

431	436	441	446	
ccc cgc tct gct gcc gtc gag aac ccc gca gct cag gaa gat gat cgg				1571
Pro Arg Ser Ala Ala Val Glu Asn Pro Ala Ala Gln Glu Asp Asp Arg				
447	452	457	462	
cta ggc aaa aat gaa gtg tac gat tac ctg cag gag ccc ctc ttc cag				1619
Leu Gly Lys Asn Glu Val Tyr Asp Tyr Leu Gln Glu Pro Leu Phe Gln				
463	468	473	478	
gct acc cct gat ctc ttc cag tac tgg tgc gtt acc caa aag cac				1667
Ala Thr Pro Asp Leu Phe Gln Tyr Trp Ser Cys Val Thr Gln Lys His				
479	484	489	494	
aca aaa ctc gcc aag ctc gcc ttc tgg ctc ctg gcg gtt ccg gcc gtg				1715
Thr Lys Leu Ala Lys Leu Ala Phe Trp Leu Leu Ala Val Pro Ala Val				
495	500	505	510	
ggc gcc aga agc ggg tgt gta aat atg tgt gaa caa gcg ctt cta atc				1763
Gly Ala Arg Ser Gly Cys Val Asn Met Cys Glu Gln Ala Leu Leu Ile				
511	516	521	526	
aaa cgg agg cgg ctg ctc agt cca gaa gat atg aat aaa ctc atg ttt				1811
Lys Arg Arg Arg Leu Leu Ser Pro Glu Asp Met Asn Lys Leu Met Phe				
527	532	537	542	
ctg aaa tcc aac atg ctt taa gacttgactt cgggggaaaa aaaaaaaaaa				1861
Leu Lys Ser Asn Met Leu *				
543	548			

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aagggacttt gcatattggt tttgcatctc atttacttct ccattgggtc aggataaaga	180
tggggaatcc cctcctctcc aaacctgccc ccaaaccctt ccttcttgaa ccagaactct	240
cctctccccg gtactccttc ctggaccgag ctggaagccc tggcggcggc ggccc atg	298
	Met
	1
ggg ccc ttg gcg ctg ccc gcc tgg ctg cag ccc agg tat agg aag aat	346

Gly	Pro	Leu	Ala	Leu	Pro	Ala	Trp	Leu	Gln	Pro	Arg	Tyr	Arg	Lys	Asn	
2					7					12					17	
gcg	tat	ctt	ttc	atc	tat	tac	tta	atc	cag	ttc	tgt	ggc	cac	tct	tgg	394
Ala	Tyr	Leu	Phe	Ile	Tyr	Tyr	Leu	Ile	Gln	Phe	Cys	Gly	His	Ser	Trp	
18					23					28					33	
ata	ttt	aca	aat	atg	aca	gtc	aga	ttc	ttt	tca	ttt	gga	aaa	gat	tca	442
Ile	Phe	Thr	Asn	Met	Thr	Val	Arg	Phe	Phe	Ser	Phe	Gly	Lys	Asp	Ser	
34					39					44					49	
atg	gtt	gac	act	ttt	tat	gct	att	gga	ctt	gtg	atg	cga	ctt	tgc	caa	490
Met	Val	Asp	Thr	Phe	Tyr	Ala	Ile	Gly	Leu	Val	Met	Arg	Leu	Cys	Gln	
50					55					60					65	
tcc	gta	tct	ctc	ctg	gaa	ctg	ctg	cac	ata	tat	gtt	ggc	att	gag	tca	538
Ser	Val	Ser	Leu	Leu	Glu	Leu	Leu	His	Ile	Tyr	Val	Gly	Ile	Glu	Ser	
66					71					76					81	
aac	cat	ctt	ctc	cca	agg	ttt	ttg	cag	ctc	aca	gaa	aga	ata	atc	atc	586
Asn	His	Leu	Leu	Pro	Arg	Phe	Leu	Gln	Leu	Thr	Glu	Arg	Ile	Ile	Ile	
82					87					92					97	
ctt	ttt	gtg	gtg	atc	acc	agt	caa	gag	gaa	gtc	caa	gag	aaa	tat	gtg	634
Leu	Phe	Val	Val	Ile	Thr	Ser	Gln	Glu	Glu	Val	Gln	Glu	Lys	Tyr	Val	
98					103					108					113	
gtg	tgt	gtt	tta	ttc	gtc	ttt	tgg	aat	cta	ttg	gat	atg	gtt	agg	tac	682
Val	Cys	Val	Leu	Phe	Val	Phe	Trp	Asn	Leu	Leu	Asp	Met	Val	Arg	Tyr	
114					119					124					129	
act	tat	agc	atg	tta	tca	gtc	ata	gga	ata	tcc	tat	gct	gtc	ttg	aca	730
Thr	Tyr	Ser	Met	Leu	Ser	Val	Ile	Gly	Ile	Ser	Tyr	Ala	Val	Leu	Thr	
130					135					140					145	
tgg	ctc	agt	caa	aca	cta	tgg	atg	cca	att	tat	cct	ttg	tgt	gtt	ctt	778
Trp	Leu	Ser	Gln	Thr	Leu	Trp	Met	Pro	Ile	Tyr	Pro	Leu	Cys	Val	Leu	
146					151					156					161	
gct	gaa	gca	ttt	gcc	atc	tat	caa	tcg	ctg	cct	tat	ttt	gaa	tca	ttt	826
Ala	Glu	Ala	Phe	Ala	Ile	Tyr	Gln	Ser	Leu	Pro	Tyr	Phe	Glu	Ser	Phe	
162					167					172					177	
ggc	act	tat	tcc	acc	aag	ctg	ccc	ttt	gac	tta	tcc	atc	tat	ttc	cca	874
Gly	Thr	Tyr	Ser	Thr	Lys	Leu	Pro	Phe	Asp	Leu	Ser	Ile	Tyr	Phe	Pro	
178					183					188					193	
tat	gtg	ctg	aaa	ata	tat	ctc	atg	atg	ctc	ttt	ata	ggt	atg	tat	ttt	922
Tyr	Val	Leu	Lys	Ile	Tyr	Leu	Met	Met	Leu	Phe	Ile	Gly	Met	Tyr	Phe	
194					199					204					209	
acc	tac	agt	cat	cta	tac	tca	gaa	aga	aga	gac	atc	ctc	gga	atc	ttt	970
Thr	Tyr	Ser	His	Leu	Tyr	Ser	Glu	Arg	Arg	Asp	Ile	Leu	Gly	Ile	Phe	
210					215					220					225	
ccc	att	aaa	aaa	aag	aag	atg	tga	agtacagcat	tccagtgtga	cacgagaaaa						1024
Pro	Ile	Lys	Lys	Lys	Lys	Met	*									

226

231

gacaggctgt ggattcagtg cagtaaataa aacacaggaa gtattctggt ggaaaaatac 1084
 cttgtatttg ataaaaatcc attacatgaa ataactgcac atacccccaa aactctagac 1144
 ataacaggct atgtttttca cacattgtat tttaagaca tatatattct ccataccctg 1204
 cttcaccaaa attcctgctt catttggatt ttatacaagt tatacttaca ttgtatgaag 1264
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<222> (1)...(1397)

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gatagacgat cagctgaaca ctctcttgaa ggagttccag ctaacagagg agaacactaa 120

gctccgatat ctcacctgtt ctcttattga agac atg gcc gcc gcg tat ttt 172
 Met Ala Ala Ala Tyr Phe
 1

cca gac tgc ata gtc aga ccc ttt ggc tcc tca gtc aac act ttt ggg 220
 Pro Asp Cys Ile Val Arg Pro Phe Gly Ser Ser Val Asn Thr Phe Gly
 7 12 17 22

aag tta gga tgt gat ttg gac atg ttt ttg gat cta gat gaa acc aga 268
 Lys Leu Gly Cys Asp Leu Asp Met Phe Leu Asp Leu Asp Glu Thr Arg
 23 28 33 38

aac ctc agc gct cac aag atc tca gga aat ttt ctg atg gaa ttt caa 316
 Asn Leu Ser Ala His Lys Ile Ser Gly Asn Phe Leu Met Glu Phe Gln
 39 44 49 54

gtg aaa aat gtt cct tca gaa aga att gca act cag aag atc ctg tct 364
 Val Lys Asn Val Pro Ser Glu Arg Ile Ala Thr Gln Lys Ile Leu Ser
 55 60 65 70

gtg tta gga gag tgc ctt gac cac ttt ggc cct ggc tgt gtg ggt gtg 412

Val	Leu	Gly	Glu	Cys	Leu	Asp	His	Phe	Gly	Pro	Gly	Cys	Val	Gly	Val		
71					76					81					86		
caa	aaa	ata	tta	aat	gcc	cgg	tgt	ccg	ctc	gtg	agg	ttc	tca	cac	cag	460	
Gln	Lys	Ile	Leu	Asn	Ala	Arg	Cys	Pro	Leu	Val	Arg	Phe	Ser	His	Gln		
87					92					97					102		
gcc	tcc	gga	ttt	cag	tgt	gat	ttg	act	acg	aac	aat	agg	att	gcc	ttg	508	
Ala	Ser	Gly	Phe	Gln	Cys	Asp	Leu	Thr	Thr	Asn	Asn	Arg	Ile	Ala	Leu		
103					108					113					118		
aca	agt	tcc	gaa	ctc	ctt	tat	ata	tat	ggg	gcc	cta	gac	tca	aga	gtg	556	
Thr	Ser	Ser	Glu	Leu	Leu	Tyr	Ile	Tyr	Gly	Ala	Leu	Asp	Ser	Arg	Val		
119					124					129					134		
aga	gcc	ttg	gtg	ttc	agt	gta	cgg	tgc	tgg	gct	cga	gca	cat	tca	cta	604	
Arg	Ala	Leu	Val	Phe	Ser	Val	Arg	Cys	Trp	Ala	Arg	Ala	His	Ser	Leu		
135					140					145					150		
aca	agt	agt	att	cct	ggg	gca	tgg	att	aca	aat	ttc	tcc	ctt	aca	atg	652	
Thr	Ser	Ser	Ile	Pro	Gly	Ala	Trp	Ile	Thr	Asn	Phe	Ser	Leu	Thr	Met		
151					156					161					166		
atg	gtc	atc	ttt	ttt	ctc	cag	aga	aga	tca	ccc	cct	att	ctt	cca	aca	700	
Met	Val	Ile	Phe	Phe	Leu	Gln	Arg	Arg	Ser	Pro	Pro	Ile	Leu	Pro	Thr		
167					172					177					182		
cta	gat	tcc	tta	aaa	acc	cta	gca	gat	gca	gaa	gat	aaa	tgt	gta	ata	748	
Leu	Asp	Ser	Leu	Lys	Thr	Leu	Ala	Asp	Ala	Glu	Asp	Lys	Cys	Val	Ile		
183					188					193					198		
gaa	ggc	aac	aac	tgc	aca	ttt	gtt	cgt	gac	ttg	agt	aga	att	aaa	cct	796	
Glu	Gly	Asn	Asn	Cys	Thr	Phe	Val	Arg	Asp	Leu	Ser	Arg	Ile	Lys	Pro		
199					204					209					214		
tca	cag	aac	aca	gaa	aca	tta	gaa	tta	cta	ctg	aag	gaa	ttt	ttt	gag	844	
Ser	Gln	Asn	Thr	Glu	Thr	Leu	Glu	Leu	Leu	Leu	Lys	Glu	Phe	Phe	Glu		
215					220					225					230		
tat	ttt	ggc	aat	ttt	gct	ttc	gat	aaa	aat	tcc	ata	aat	att	cga	cag	892	
Tyr	Phe	Gly	Asn	Phe	Ala	Phe	Asp	Lys	Asn	Ser	Ile	Asn	Ile	Arg	Gln		
231					236					241					246		
gga	agg	gag	caa	aac	aaa	cct	gat	tct	tct	cct	ctg	tac	att	cag	aat	940	
Gly	Arg	Glu	Gln	Asn	Lys	Pro	Asp	Ser	Ser	Pro	Leu	Tyr	Ile	Gln	Asn		
247					252					257					262		
cca	ttt	gaa	act	tct	ctc	aac	ata	agc	aaa	aat	gta	agt	caa	agc	cag	988	
Pro	Phe	Glu	Thr	Ser	Leu	Asn	Ile	Ser	Lys	Asn	Val	Ser	Gln	Ser	Gln		
263					268					273					278		
ctg	caa	aaa	ttt	gta	gat	ttg	gcc	cga	gaa	agt	gcc	tgg	att	tta	caa	1036	
Leu	Gln	Lys	Phe	Val	Asp	Leu	Ala	Arg	Glu	Ser	Ala	Trp	Ile	Leu	Gln		
279					284					289					294		
cag	gaa	gat	aca	gat	cga	cct	tcc	ata	tca	agt	aat	cgg	ccc	tgg	ggg	1084	
Gln	Glu	Asp	Thr	Asp	Arg	Pro	Ser	Ile	Ser	Ser	Asn	Arg	Pro	Trp	Gly		

295	300	305	310	
ctg gta tcc cta ttg cta cca tct gct cca aac aga aag tcc ttt acc				1132
Leu Val Ser Leu Leu Leu Pro Ser Ala Pro Asn Arg Lys Ser Phe Thr				
311	316	321	326	
aag aag aaa agc aat aag ttt gca att gaa aca gtc aaa aac ttg cta				1180
Lys Lys Lys Ser Asn Lys Phe Ala Ile Glu Thr Val Lys Asn Leu Leu				
327	332	337	342	
gaa tct tta aaa ggt aac aga aca gaa aat ttc aca aaa acc agt ggg				1228
Glu Ser Leu Lys Gly Asn Arg Thr Glu Asn Phe Thr Lys Thr Ser Gly				
343	348	353	358	
gaa gag gaa caa tta gta ctc agg aca tga t gggcttgcta cattgtgtta				1279
Glu Glu Glu Gln Leu Val Leu Arg Thr *				
359	364			
aaggaactgg ggctttngcc tattccaaat gggctctgtgg gantttactt nggggaaaaa				1339
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gggagtcaac acaggaaaga ttagagcacg tgggcagagg ctgttgccca ttggtcacat				180
gtggtcagca gagagcaggt gaccagcacc ctggagcttt gcaggaagaa ccagacagcc				240
tggagctgag gttttaattg taggggccaa aacaaatggg gaaaaagaca aatttagaaa				300
acaaagaaag tagatgctca actgagccag aaggaagtca ctagcaaaga ggaaaaaat				360
agagctctgg aaaaatagtg taaacagtca caagaaagg accctgtgtc atgcctgaca				420
tctggacagg tatataaaga gccaggtc agggagctcc acacctgcac ctccctctca				480
cctgctctc tacctgatcc accctcaatc caccagaacc atg ggc tgc tgt ggc				535
/		Met Gly Cys Cys Gly		
		1		
tgc tcc gga ggc tgt ggc tcc ggc tgt ggg ggc tgt ggc tcc agc tgt				583
Cys Ser Gly Gly Cys Gly Ser Gly Cys Gly Gly Cys Gly Ser Ser Cys				

6	11	16	21	
ggg ggt tgt ggc tct ggc tgt ggg ggc tgt ggc tcc ggc cgt ggg ggc				631
Gly Gly Cys Gly Ser Gly Cys Gly Gly Cys Gly Ser Gly Arg Gly Gly				
22	27	32	37	
tgt ggc tct ggc tgt ggg ggc tgc agc tcc agc tgt ggg gga tgt ggc				679
Cys Gly Ser Gly Cys Gly Gly Cys Ser Ser Ser Cys Gly Gly Cys Gly				
38	43	48	53	
tcc aga tgt tat gtg cct gtc tgc tgc tgc aag ccc gtg tgc tcc tgg				727
Ser Arg Cys Tyr Val Pro Val Cys Cys Cys Lys Pro Val Cys Ser Trp				
54	59	64	69	
gtg cca gcc tgt tcc tgc acc agc tgt ggc tcc tgt ggg ggc tcc aag				775
Val Pro Ala Cys Ser Cys Thr Ser Cys Gly Ser Cys Gly Gly Ser Lys				
70	75	80	85	
ggg ggc tgt ggc tcc tgt ggg ggt tcc aag ggg ggc tgt ggt tct tgt				823
Gly Gly Cys Gly Ser Cys Gly Gly Ser Lys Gly Gly Cys Gly Ser Cys				
86	91	96	101	
ggc tgc tcc cag tcc agc tgt tgt aag ccc tgt tgc tgc tcc tca ggc				871
Gly Cys Ser Gln Ser Ser Cys Cys Lys Pro Cys Cys Cys Ser Ser Gly				
102	107	112	117	
tgt gga tca tcc tgc tgc cag tcc agc tgc tgc aag ccc tgc tgc tgc				919
Cys Gly Ser Ser Cys Cys Gln Ser Ser Cys Cys Lys Pro Cys Cys Cys				
118	123	128	133	
cag tcc agc tgc tgt gtc ccc gtg tgc tgc cag tcc agc tgc tgc aag				967
Gln Ser Ser Cys Cys Val Pro Val Cys Cys Gln Ser Ser Cys Cys Lys				
134	139	144	149	
ccc tgt tgc tgc cag tcc aac tgt tgt gtc cct gtg tgc tgc cag tgt				1015
Pro Cys Cys Cys Gln Ser Asn Cys Cys Val Pro Val Cys Cys Gln Cys				
150	155	160	165	
aag atc tga ggctctg gaccagacc ttcaggtttc tctgttttgg tgaaagcatt				1071
Lys Ile *				
166				
tcttatgggt cctgagtc gttcgtccca cacatcctcc ctgaggcacc tgcacctgct				1131
ctagctcacc atccatgcac acacctcctt ccatggctca gctctcctct gggccctgcc				1191
ttcagcctcc tcaactccaga aacgtgtggt tccctgatgc gggaggtgtc ctgcctgga				1251
cgcaggcacc cagccgactg ccacgatggt cctgcactt ggggtgtggac catcttcttc				1311
ttctccctgg gctgactgag atgcaaggtc tgaccccaaca aggccaggcc gacgtttctg				1371
agtgatcact aagaaccagc ttctcaacca ccatcaggac cctggatcct cctgggccgc				1431
tgectgttct cctgtggccc aagtgtgacc aggaaggtct ctttccctcc tgttgtctcc				1491
atccgtgcgt tcttctgcc ccggactcgc cacgaaatcg tcgacccggg aattccggac				1551

cggtacggca g

1562

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<223> n = a,t,c or g

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ctgaaaagcgg caagtagcgc accatattat gtagttagtc atcataaggc accaggncctt 180
acactatggc tcnggctcgt atgtgtgtgg aatgtgagcg gatacanttc acacagnaan 240
cagtaatgac atgattacga ttttatacac tcactatagg ggaatntggc cctcgaggcc 300
aagaattcng gcacgagggg cagcttcctt gcggaagtgg tgaccgtgag agaagaag 358
atg gcg gcc cct gta gtg gcg ccg cct ggt gtg gtg gtt agt cgg gct 406
Met Ala Ala Pro Val Val Ala Pro Pro Gly Val Val Val Ser Arg Ala
1 5 10 15
aac aag cgc agc ggc gcg ggg ccg gga ggc agc ggt ggc ggg gga gcc 454
Asn Lys Arg Ser Gly Ala Gly Pro Gly Gly Ser Gly Gly Gly Gly Ala
17 22 27 32
aga ggg gcg gag gag gaa ccg ccg ccg ccc cta caa gca gtt ctg gtg 502
Arg Gly Ala Glu Glu Glu Pro Pro Pro Pro Leu Gln Ala Val Leu Val
33 38 43 48
gcc gat agc ttc gat cgc cgc ttc ttc ccc atc tcc aag gac cag cct 550
Ala Asp Ser Phe Asp Arg Arg Phe Phe Pro Ile Ser Lys Asp Gln Pro
49 54 59 64
cgg gtc ctc ttg ccc ctg gcc aat gtg gca tta att gac tac act ctg 598
Arg Val Leu Leu Pro Leu Ala Asn Val Ala Leu Ile Asp Tyr Thr Leu
65 70 75 80
gaa ttc ctg act gcc aca ggt gta cag gaa aca ttt gtc ttt tgt tgc 646
Glu Phe Leu Thr Ala Thr Gly Val Gln Glu Thr Phe Val Phe Cys Cys
81 86 91 96
tgg aaa gct gct caa atc aaa gaa cat tta ctg aag tca aag tgg tgc 694

Trp	Lys	Ala	Ala	Gln	Ile	Lys	Glu	His	Leu	Leu	Lys	Ser	Lys	Trp	Cys	
97					102					107					112	
cgc	cct	aca	tct	ctc	aat	gtg	gtt	cga	ata	att	aca	tca	gag	ctc	tat	742
Arg	Pro	Thr	Ser	Leu	Asn	Val	Val	Arg	Ile	Ile	Thr	Ser	Glu	Leu	Tyr	
113					118					123					128	
cga	tca	ctg	gga	gat	gtc	ctc	cgt	gat	gtt	gat	gcc	aag	gct	ttg	gtg	790
Arg	Ser	Leu	Gly	Asp	Val	Leu	Arg	Asp	Val	Asp	Ala	Lys	Ala	Leu	Val	
129					134					139					144	
cgc	tct	gac	ttt	ctt	ctg	gtg	tat	ggg	gat	gtc	atc	tca	aac	atc	aat	838
Arg	Ser	Asp	Phe	Leu	Leu	Val	Tyr	Gly	Asp	Val	Ile	Ser	Asn	Ile	Asn	
145					150					155					160	
atc	acc	aga	gcc	ctt	gag	gaa	cac	agg	ttg	aga	cgg	aag	cta	gaa	aaa	886
Ile	Thr	Arg	Ala	Leu	Glu	Glu	His	Arg	Leu	Arg	Arg	Lys	Leu	Glu	Lys	
161					166					171					176	
aat	gtt	tct	gtg	atg	acg	atg	atc	ttc	aag	gag	tca	tcc	ccc	agc	cac	934
Asn	Val	Ser	Val	Met	Thr	Met	Ile	Phe	Lys	Glu	Ser	Ser	Pro	Ser	His	
177					182					187					192	
cca	act	cgt	tgc	cac	gaa	gac	aat	gtg	gta	gtg	gct	gtg	gat	agt	acc	982
Pro	Thr	Arg	Cys	His	Glu	Asp	Asn	Val	Val	Val	Ala	Val	Asp	Ser	Thr	
193					198					203					208	
aca	aac	agg	gtt	ctc	cat	ttt	cag	aag	acc	cag	ggg	ctc	cgg	cgt	ttt	1030
Thr	Asn	Arg	Val	Leu	His	Phe	Gln	Lys	Thr	Gln	Gly	Leu	Arg	Arg	Phe	
209					214					219					224	
gca	ttt	cct	ctg	agc	ctg	ttt	cag	ggc	agt	agt	gat	gga	gtg	gag	gtt	1078
Ala	Phe	Pro	Leu	Ser	Leu	Phe	Gln	Gly	Ser	Ser	Asp	Gly	Val	Glu	Val	
225					230					235					240	
cga	tat	gat	tta	ctg	gat	tgt	cat	atc	agc	atc	tgt	tct	cct	cag	gtg	1126
Arg	Tyr	Asp	Leu	Leu	Asp	Cys	His	Ile	Ser	Ile	Cys	Ser	Pro	Gln	Val	
241					246					251					256	
gca	caa	ctc	ttt	aca	gac	aac	ttt	gac	tac	caa	act	cga	gat	gac	ttt	1174
Ala	Gln	Leu	Phe	Thr	Asp	Asn	Phe	Asp	Tyr	Gln	Thr	Arg	Asp	Asp	Phe	
257					262					267					272	
gtg	cga	ggg	ctc	tta	gtg	aat	gag	gag	atc	cta	ggg	aac	cag	atc	cac	1222
Val	Arg	Gly	Leu	Leu	Val	Asn	Glu	Glu	Ile	Leu	Gly	Asn	Gln	Ile	His	
273					278					283					288	
atg	cac	gta	aca	gct	aag	gaa	tat	ggg	gcc	cgt	gtc	tcc	aac	cta	cac	1270
Met	His	Val	Thr	Ala	Lys	Glu	Tyr	Gly	Ala	Arg	Val	Ser	Asn	Leu	His	
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Met	Tyr	Ser	Ala	Val	Cys	Ala	Asp	Val	Ile	Arg	Arg	Trp	Val	Tyr	Pro	
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ctc	acc	cca	gag	gcg	aac	ttc	act	gac	agc	acc	acc	cag	agc	tgc	act	1366
Leu	Thr	Pro	Glu	Ala	Asn	Phe	Thr	Asp	Ser	Thr	Thr	Gln	Ser	Cys	Thr	

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His Ser Arg His Asn Ile Tyr Arg Gly Pro Glu Val Ser Leu Gly His							
337		342		347		352	
ggc agc atc cta gag gaa aat gtg ctc ctg ggc tct ggc act gtc att							1462
Gly Ser Ile Leu Glu Glu Asn Val Leu Leu Gly Ser Gly Thr Val Ile							
353		358		363		368	
ggc agc aat tgc ttt atc acc aac agt gtc att ggc ccc ggc tgc cac							1510
Gly Ser Asn Cys Phe Ile Thr Asn Ser Val Ile Gly Pro Gly Cys His							
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att gag cca ggt gat aac gtg gtg ctg gac cag acc tac ctg tgg cag							1558
Ile Glu Pro Gly Asp Asn Val Val Leu Asp Gln Thr Tyr Leu Trp Gln							
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Gly Val Arg Val Ala Ala Gly Ala Gln Ile His Gln Ser Leu Leu Cys							
401		406		411		416	
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Asp Asn Ala Glu Val Lys Glu Arg Val Thr Leu Lys Pro Arg Ser Val							
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ctc act tcc cag gtg gtc gtg ggc cca aat atc acg ctg cct gag ggc							1702
Leu Thr Ser Gln Val Val Val Gly Pro Asn Ile Thr Leu Pro Glu Gly							
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Ser Val Ile Ser Leu His Pro Pro Asp Ala Glu Glu Asp Glu Asp Asp							
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Gly Glu Phe Ser Asp Asp Ser Gly Ala Asp Gln Glu Lys Asp Lys Val							
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Lys Met Lys Gly Tyr Asn Pro Ala Glu Val Gly Ala Ala Gly Lys Gly							
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Tyr Leu Trp Lys Ala Ala Gly Met Asn Met Glu Glu Glu Glu Glu Leu							
497		502		507		512	
cag cag aat ctg tgg gga ctc aag atc aac atg gaa gaa gag agt gaa							1942
Gln Gln Asn Leu Trp Gly Leu Lys Ile Asn Met Glu Glu Glu Ser Glu							
513		518		523		528	
agt gaa agt gag caa agt atg gat tct gag gag ccg gac agc cgg gga							1990
Ser Glu Ser Glu Gln Ser Met Asp Ser Glu Glu Pro Asp Ser Arg Gly							
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ggc tcc cct cag atg gat gac atc aaa gtg ttc cag aat gaa gtt tta							2038
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                                   Met Ile Ser Ile Thr Glu Trp Gln
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Lys Ile Gly Val Gly Ile Thr Gly Phe Gly Ile Phe Phe Ile Leu Phe
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gga aca ctc ctg tac ttt gat tcc gtg ctc ctg gcc ttt gga aac ctg      207
Gly Thr Leu Leu Tyr Phe Asp Ser Val Leu Leu Ala Phe Gly Asn Leu
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ctg ttc ctg acg ggc ctg tcc ctc atc att ggc ctg agg aag acc ttt      255
Leu Phe Leu Thr Gly Leu Ser Leu Ile Ile Gly Leu Arg Lys Thr Phe
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tgg ttc ttc ttc caa cgg cac aaa ctc aag gga acc agc ttc ctc ctg      303
Trp Phe Phe Phe Gln Arg His Lys Leu Lys Gly Thr Ser Phe Leu Leu
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ggg ggt gtg gtt atc gtg ctc cta cgc tgg ccc ctc ctc ggc atg ttc      351
Gly Gly Val Val Ile Val Leu Leu Arg Trp Pro Leu Leu Gly Met Phe
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ctg gaa acc tac gga ttc ttc agc ctc ttt aag ggc ttt ttc cct gtc      399
Leu Glu Thr Tyr Gly Phe Phe Ser Leu Phe Lys Gly Phe Phe Pro Val
  89              94              99              104

gcc ttc ggc ttc ctg ggc aat gtc tgc aac atc ccc ttc ctg ggt gcg      447
Ala Phe Gly Phe Leu Gly Asn Val Cys Asn Ile Pro Phe Leu Gly Ala
  105              110              115              120

ctg ttc cgg aga ctt caa ggc act agc tcg atg gtc tga aaaacagaga      496
Leu Phe Arg Arg Leu Gln Gly Thr Ser Ser Met Val *
  121              126              131

tgagctcctt gaacttgat cattgggtga gggggctaga gggagaatgg gaaccacccc      556
ctcagtcctc tgcactgact cactcccga catatccgga cctccccaag tccagaagga      616
aggaatggag ctgagcaact gacgtcaaat cccaagtcg actcaagagg ctgccaggaa      676

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gcagagatgc agacccaag gagactgggc tggggctggt atcacaccct cactctatat 736

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cgctgaggaa gtcagcgtcg gagacggagg cctgcccctc agagacgcgc cccctagtgg 240

aagcagagtg ggaagcaggt atg act gat ttt ccc aaa ata ttt tgt gaa 290
Met Thr Asp Phe Pro Lys Ile Phe Cys Glu
1 5

act tct cac aag ttg gtg agt gtg gaa gcc ttt gct ctg gct gcg aaa 338
Thr Ser His Lys Leu Val Ser Val Glu Ala Phe Ala Leu Ala Ala Lys
11 16 21 26

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Tyr Tyr Ser Val Gln Asn Leu Gly Ile Cys Thr Pro Phe Glu Gln Leu
27 32 37 42

ctt gta gcc ctt cga gga aat caa aac cag aga att ggt gaa aat cag 434
Leu Val Ala Leu Arg Gly Asn Gln Asn Gln Arg Ile Gly Glu Asn Gln
43 48 53 58

aag gca gtt gag ttt atg aat atg aag aaa tct cat gaa gtt cag gca 482
Lys Ala Val Glu Phe Met Asn Met Lys Lys Ser His Glu Val Gln Ala
59 64 69 74

atg tca gag ctg att agc agt att gct gac tac tat gga ata aag cag 530
Met Ser Glu Leu Ile Ser Ser Ile Ala Asp Tyr Tyr Gly Ile Lys Gln
75 80 85 90

gtg att gac ttg ggt tcc ggt aaa ggc tac cta agc tct ttt ttg tcc 578
Val Ile Asp Leu Gly Ser Gly Lys Gly Tyr Leu Ser Ser Phe Leu Ser
91 96 101 106

ttg aag tat ggc tta taa gtttat ggaattgatt cttcaaatac caatactcat 632
Leu Lys Tyr Gly Leu *
107 112

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caaattggaaa cccttcattc tcagccacat caagaagaaa atttgtgttt tgaaaattcc	932
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Met Glu Pro Lys Ala Ser
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tgt cca gct gct gca ccc ttg atg gag aga aaa ttc cat gtt ctt gtg 222
Cys Pro Ala Ala Ala Pro Leu Met Glu Arg Lys Phe His Val Leu Val
7 12 17 22

ggg gtc acg ggg agt gtc gca gcc ctg aag ttg cct ctt ctg gtg tca 270
Gly Val Thr Gly Ser Val Ala Ala Leu Lys Leu Pro Leu Leu Val Ser
23 28 33 38

aag ctt ttg gac att cct ggg ctg gaa gta gca gtg gtc aca act gag 318
Lys Leu Leu Asp Ile Pro Gly Leu Glu Val Ala Val Val Thr Thr Glu
39 44 49 54

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Arg Ala Lys His Phe Tyr Ser Pro Gln Asp Ile Pro Val Thr Leu Tyr
55 60 65 70

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Ser Asp Ala Asp Glu Trp Glu Met Trp Lys Ser Arg Ser Asp Pro Val
71 76 81 86

ctg cac att gac ctg cgg agg tgg gca gac ctc ctg ctg gtg gct cct 462
Leu His Ile Asp Leu Arg Arg Trp Ala Asp Leu Leu Leu Val Ala Pro
87 92 97 102

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Leu Asp Ala Asn Thr Leu Gly Lys Val Ala Ser Gly Ile Cys Asp Asn
103 108 113 118

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119 124 129 134

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Phe Cys Pro Ala Met Asn Thr Ala Met Trp Glu His Pro Ile Thr Ala
135 140 145 150

cag cag gta gac cag ctc aag gcc ttt ggc tat gtc gag atc ccc tgt 654
Gln Gln Val Asp Gln Leu Lys Ala Phe Gly Tyr Val Glu Ile Pro Cys
151 156 161 166

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Val Ala Lys Lys Leu Val Cys Gly Asp Glu Gly Leu Gly Ala Met Ala
167 172 177 182

gaa gtg ggg acc atc gtg gac aaa gtg aaa gaa gtc ctc ttc cag cac 750
Glu Val Gly Thr Ile Val Asp Lys Val Lys Glu Val Leu Phe Gln His
183 188 193 198

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 Ser Gly Phe Gln Gln Ser *
 199 204

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 4 9 14 19

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Leu Leu Glu Glu Asp Asn Lys Phe Cys Ala Asp Cys Gln Ser Lys Gly	
20 25 30 35	
ccg cga tgg gcc tct tgg aac att ggt gtg ttc atc tgc att cga tgt	199
Pro Arg Trp Ala Ser Trp Asn Ile Gly Val Phe Ile Cys Ile Arg Cys	
36 41 46 51	
gct gga atc cac agg aat ctg ggg gtg cac ata tcc agg gta aag tca	247
Ala Gly Ile His Arg Asn Leu Gly Val His Ile Ser Arg Val Lys Ser	
52 57 62 67	
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Val Asn Leu Asp Gln Trp Thr Gln Glu Gln Ile Gln Cys Met Gln Glu	
68 73 78 83	
atg gga aat gga aag gca aac cga ctt tat gaa gcc tat ctt cct gag	343
Met Gly Asn Gly Lys Ala Asn Arg Leu Tyr Glu Ala Tyr Leu Pro Glu	
84 89 94 99	
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Thr Phe Arg Arg Pro Gln Ile Asp Pro Ala Val Glu Gly Phe Ile Arg	
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Asp Lys Tyr Glu Lys Lys Lys Tyr Met Asp Arg Ser Leu Asp Ile Asn	
116 121 126 131	
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Ala Phe Arg Lys Glu Lys Asp Asp Lys Trp Lys Arg Gly Ser Glu Pro	
132 137 142 147	
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Val Pro Glu Lys Lys Leu Glu Pro Val Val Phe Glu Lys Val Lys Met	
148 153 158 163	
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Pro Gln Lys Lys Glu Asp Pro Gln Leu Pro Arg Lys Ser Ser Pro Lys	
164 169 174 179	
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Ser Thr Ala Pro Val Met Asp Leu Leu Gly Leu Asp Ala Pro Val Ala	
180 185 190 195	
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Cys Ser Ile Ala Asn Ser Lys Thr Ser Asn Thr Leu Glu Lys Asp Leu	
196 201 206 211	
gat ctg ttg gcc tct gtt cca tcc cct tct tct tcc ggt tcc aga aag	727
Asp Leu Leu Ala Ser Val Pro Ser Pro Ser Ser Ser Gly Ser Arg Lys	
212 217 222 227	
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Val Val Gly Ser Met Pro Thr Ala Gly Ser Ala Gly Ser Val Pro Glu	
228 233 238 243	

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 Met
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 atc ctg cac aac cag atc aca ggc att ggc cgc gaa gac ttt gcc acc 164
 Ile Leu His Asn Gln Ile Thr Gly Ile Gly Arg Glu Asp Phe Ala Thr
 2 7 12 17
 acc tac ttc ctg gag gag ctc aac ctc agc tac aac cgc atc acc agc 212
 Thr Tyr Phe Leu Glu Glu Leu Asn Leu Ser Tyr Asn Arg Ile Thr Ser
 18 23 28 33
 cca cag gtg cac cgc gac gcc ttc cgc aag ctg cgc ctg ctg cgc tcg 260
 Pro Gln Val His Arg Asp Ala Phe Arg Lys Leu Arg Leu Leu Arg Ser
 34 39 44 49
 ctg gac ctg tcg ggc aac cgg ctg cac atg ctg cca cct ggg ctg cct 308
 Leu Asp Leu Ser Gly Asn Arg Leu His Met Leu Pro Pro Gly Leu Pro
 50 55 60 65
 cga aat gtc cat gtg ctg aag gtc aag cgc aat gag ctg gct gcc ttg 356
 Arg Asn Val His Val Leu Lys Val Lys Arg Asn Glu Leu Ala Ala Leu
 66 71 76 81
 gca cga ggg gcg ctg gcg ggc atg gct cag ctg cgt gag ctg tac ctc 404
 Ala Arg Gly Ala Leu Ala Gly Met Ala Gln Leu Arg Glu Leu Tyr Leu
 82 87 92 97
 acc agc aac cga ctg cgc agc cga gcc ctg ggc ccc cgt gcc tgg gtg 452

Thr	Ser	Asn	Arg	Leu	Arg	Ser	Arg	Ala	Leu	Gly	Pro	Arg	Ala	Trp	Val		
98					103					108					113		
gac ctc gcc cat ctg cag ctg ctg gac atc gcc ggg aat cag ctc aca 500																	
Asp	Leu	Ala	His	Leu	Gln	Leu	Leu	Asp	Ile	Ala	Gly	Asn	Gln	Leu	Thr		
114					119					124					129		
gag atc ccc gag ggg ctc ccc gag tca ctt gag tac ctg tac ctg cag 548																	
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130					135					140					145		
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146					151					156					161		
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162					167					172					177		
gtg gtg gac agt gcc ttc cgg agg ctg aag cac ctg cag gtc ttg gac 692																	
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178					183					188					193		
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Ile	Glu	Gly	Asn	Leu	Glu	Phe	Gly	Asp	Ile	Ser	Lys	Asp	Arg	Gly	Arg		
194					199					204					209		
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210					215					220					225		
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Glu	Thr	Arg	*														
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 Glu Tyr Tyr Ala Thr Ile Lys Arg Asn Glu Ile Met Phe Phe Ala Gly

DATE	TIME	LOCATION	WIND	TEMP	REL HUM	SEA	WAVE	WAVE DIR	WAVE PER	WAVE HGT	WAVE L	WAVE S	WAVE T	WAVE R	WAVE B	WAVE G	WAVE Y	WAVE C	WAVE W	WAVE M	WAVE U	WAVE V	WAVE H	WAVE D	WAVE F	WAVE A	WAVE J	WAVE K	WAVE L	WAVE M	WAVE N	WAVE O	WAVE P	WAVE Q	WAVE R	WAVE S	WAVE T	WAVE U	WAVE V	WAVE W	WAVE X	WAVE Y	WAVE Z	WAVE AA	WAVE AB	WAVE AC	WAVE AD	WAVE AE	WAVE AF	WAVE AG	WAVE AH	WAVE AI	WAVE AJ	WAVE AK	WAVE AL	WAVE AM	WAVE AN	WAVE AO	WAVE AP	WAVE AQ	WAVE AR	WAVE AS	WAVE AT	WAVE AU	WAVE AV	WAVE AW	WAVE AX	WAVE AY	WAVE AZ	WAVE BA	WAVE BB	WAVE BC	WAVE BD	WAVE BE	WAVE BF	WAVE BG	WAVE BH	WAVE BI	WAVE BJ	WAVE BK	WAVE BL	WAVE BM	WAVE BN	WAVE BO	WAVE BP	WAVE BQ	WAVE BR	WAVE BS	WAVE BT	WAVE BU	WAVE BV	WAVE BW	WAVE BX	WAVE BY	WAVE BZ	WAVE CA	WAVE CB	WAVE CC	WAVE CD	WAVE CE	WAVE CF	WAVE CG	WAVE CH	WAVE CI	WAVE CJ	WAVE CK	WAVE CL	WAVE CM	WAVE CN	WAVE CO	WAVE CP	WAVE CQ	WAVE CR	WAVE CS	WAVE CT	WAVE CU	WAVE CV	WAVE CW	WAVE CX	WAVE CY	WAVE CZ	WAVE DA	WAVE DB	WAVE DC	WAVE DD	WAVE DE	WAVE DF	WAVE DG	WAVE DH	WAVE DI	WAVE DJ	WAVE DK	WAVE DL	WAVE DM	WAVE DN	WAVE DO	WAVE DP	WAVE DQ	WAVE DR	WAVE DS	WAVE DT	WAVE DU	WAVE DV	WAVE DW	WAVE DX	WAVE DY	WAVE DZ	WAVE EA	WAVE EB	WAVE EC	WAVE ED	WAVE EE	WAVE EF	WAVE EG	WAVE EH	WAVE EI	WAVE EJ	WAVE EK	WAVE EL	WAVE EM	WAVE EN	WAVE EO	WAVE EP	WAVE EQ	WAVE ER	WAVE ES	WAVE ET	WAVE EU	WAVE EV	WAVE EW	WAVE EX	WAVE EY	WAVE EZ	WAVE FA	WAVE FB	WAVE FC	WAVE FD	WAVE FE	WAVE FF	WAVE FG	WAVE FH	WAVE FI	WAVE FJ	WAVE FK	WAVE FL	WAVE FM	WAVE FN	WAVE FO	WAVE FP	WAVE FQ	WAVE FR	WAVE FS	WAVE FT	WAVE FU	WAVE FV	WAVE FW	WAVE FX	WAVE FY	WAVE FZ	WAVE GA	WAVE GB	WAVE GC	WAVE GD	WAVE GE	WAVE GF	WAVE GG	WAVE GH	WAVE GI	WAVE GJ	WAVE GK	WAVE GL	WAVE GM	WAVE GN	WAVE GO	WAVE GP	WAVE GQ	WAVE GR	WAVE GS	WAVE GT	WAVE GU	WAVE GV	WAVE GW	WAVE GX	WAVE GY	WAVE GZ	WAVE HA	WAVE HB	WAVE HC	WAVE HD	WAVE HE	WAVE HF	WAVE HG	WAVE HH	WAVE HI	WAVE HJ	WAVE HK	WAVE HL	WAVE HM	WAVE HN	WAVE HO	WAVE HP	WAVE HQ	WAVE HR	WAVE HS	WAVE HT	WAVE HU	WAVE HV	WAVE HW	WAVE HX	WAVE HY	WAVE HZ	WAVE IA	WAVE IB	WAVE IC	WAVE ID	WAVE IE	WAVE IF	WAVE IG	WAVE IH	WAVE II	WAVE IJ	WAVE IK	WAVE IL	WAVE IM	WAVE IN	WAVE IO	WAVE IP	WAVE IQ	WAVE IR	WAVE IS	WAVE IT	WAVE IU	WAVE IV	WAVE IW	WAVE IX	WAVE IY	WAVE IZ	WAVE JA	WAVE JB	WAVE JC	WAVE JD	WAVE JE	WAVE JF	WAVE JG	WAVE JH	WAVE JI	WAVE JJ	WAVE JK	WAVE JL	WAVE JM	WAVE JN	WAVE JO	WAVE JP	WAVE JQ	WAVE JR	WAVE JS	WAVE JT	WAVE JU	WAVE JV	WAVE JW	WAVE JX	WAVE JY	WAVE JZ	WAVE KA	WAVE KB	WAVE KC	WAVE KD	WAVE KE	WAVE KF	WAVE KG	WAVE KH	WAVE KI	WAVE KJ	WAVE KK	WAVE KL	WAVE KM	WAVE KN	WAVE KO	WAVE KP	WAVE KQ	WAVE KR	WAVE KS	WAVE KT	WAVE KU	WAVE KV	WAVE KW	WAVE KX	WAVE KY	WAVE KZ	WAVE LA	WAVE LB	WAVE LC	WAVE LD	WAVE LE	WAVE LF	WAVE LG	WAVE LH	WAVE LI	WAVE LJ	WAVE LK	WAVE LL	WAVE LM	WAVE LN	WAVE LO	WAVE LP	WAVE LQ	WAVE LR	WAVE LS	WAVE LT	WAVE LU	WAVE LV	WAVE LW	WAVE LX	WAVE LY	WAVE LZ	WAVE MA	WAVE MB	WAVE MC	WAVE MD	WAVE ME	WAVE MF	WAVE MG	WAVE MH	WAVE MI	WAVE MJ	WAVE MK	WAVE ML	WAVE MM	WAVE MN	WAVE MO	WAVE MP	WAVE MQ	WAVE MR	WAVE MS	WAVE MT	WAVE MU	WAVE MV	WAVE MW	WAVE MX	WAVE MY	WAVE MZ	WAVE NA	WAVE NB	WAVE NC	WAVE ND	WAVE NE	WAVE NF	WAVE NG	WAVE NH	WAVE NI	WAVE NJ	WAVE NK	WAVE NL	WAVE NM	WAVE NN	WAVE NO	WAVE NP	WAVE NQ	WAVE NR	WAVE NS	WAVE NT	WAVE NU	WAVE NV	WAVE NW	WAVE NX	WAVE NY	WAVE NZ	WAVE OA	WAVE OB	WAVE OC	WAVE OD	WAVE OE	WAVE OF	WAVE OG	WAVE OH	WAVE OI	WAVE OJ	WAVE OK	WAVE OL	WAVE OM	WAVE ON	WAVE OO	WAVE OP	WAVE OQ	WAVE OR	WAVE OS	WAVE OT	WAVE OU	WAVE OV	WAVE OW	WAVE OX	WAVE OY	WAVE OZ	WAVE PA	WAVE PB	WAVE PC	WAVE PD	WAVE PE	WAVE PF	WAVE PG	WAVE PH	WAVE PI	WAVE PJ	WAVE PK	WAVE PL	WAVE PM	WAVE PN	WAVE PO	WAVE PP	W
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Pro Lys Asp Asn Thr Glu Ala Glu Lys Arg Asp Pro Gln Glu Leu Val				
87	92	97	102	
gcc tcc ttt tct gaa aga gtt cgg aac atg tcg cct gat gaa atc aag				390
Ala Ser Phe Ser Glu Arg Val Arg Asn Met Ser Pro Asp Glu Ile Lys				
103	108	113	118	
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Ile Pro Pro Glu Pro Pro Gly Arg Cys Ser Asn His Leu Gln Asp Lys				
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Ile Gln Lys Leu Tyr Glu Arg Lys Ile Lys Glu Gly Met Asp Met Asn				
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Tyr Ile Ile Gln Arg Lys Lys Glu Phe Arg Asn Pro Ser Ile Tyr Glu				
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Lys Leu Ile Gln Phe Cys Ala Ile Asp Glu Leu Gly Thr Asn Tyr Pro				
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Lys Asp Met Phe Asp Pro His Gly Trp Ser Glu Asp Ser Tyr Tyr Glu				
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gca tta gcc aag gcc cag aaa att gag atg gac aaa ttg gaa aag gcc				678
Ala Leu Ala Lys Ala Gln Lys Ile Glu Met Asp Lys Leu Glu Lys Ala				
199	204	209	214	
aaa aag gag cga aca aaa att gag ttt gtg acg ggc acc aaa aaa ggc				726
Lys Lys Glu Arg Thr Lys Ile Glu Phe Val Thr Gly Thr Lys Lys Gly				
215	220	225	230	
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Thr Thr Thr Asn Ala Thr Ser Thr Thr Thr Thr Thr Ala Ser Thr Ala				
231	236	241	246	
gtt gca gat gct cag aag aga aag agc aag tgg gat tcg gct atc cca				822
Val Ala Asp Ala Gln Lys Arg Lys Ser Lys Trp Asp Ser Ala Ile Pro				
247	252	257	262	
gtg aca acg ata gcc cag ccc acc atc ctc acc acc aca gcc acc ctg				870
Val Thr Thr Ile Ala Gln Pro Thr Ile Leu Thr Thr Thr Ala Thr Leu				
263	268	273	278	
cca gct gtt gtc acg gtc acc acc agc gcc agc ggc tcc aag acc acc				918
Pro Ala Val Val Thr Val Thr Thr Ser Ala Ser Gly Ser Lys Thr Thr				
279	284	289	294	
gtc atc tct gct gtg ggc acc att gtg aag aag gcc aag cag tga cct				966
Val Ile Ser Ala Val Gly Thr Ile Val Lys Lys Ala Lys Gln *				
295	300	305		


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gagggggccac cctaggactt gaaaggaccg tgcagcccag tgaccactgc ccagtgggag 1026
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tgtcccccaa gactcaatag tcttggttgg gactattgcc tcagggttga caacaggggtg 1326
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Val Leu Ser Ser Leu Ala Val Tyr Ala Glu Asp Ser Glu Pro Glu Ser
  7                      12                      17                      22

gat ggc gag gct gga atc gag gcg gtg ggc agc gcg gct gag gag aaa  150
Asp Gly Glu Ala Gly Ile Glu Ala Val Gly Ser Ala Ala Glu Glu Lys
  23                      28                      33                      38

ggc gga ttg gta tct gat gcc tat ggg gag gat gac ttt tct cgt cta  198
Gly Gly Leu Val Ser Asp Ala Tyr Gly Glu Asp Asp Phe Ser Arg Leu
  39                      44                      49                      54

ggg ggt gat gaa gat ggt tat gaa gaa gaa gaa gat gag aac agt aga  246
Gly Gly Asp Glu Asp Gly Tyr Glu Glu Glu Glu Asp Glu Asn Ser Arg
  55                      60                      65                      70

cag tcg aga cgg tgt ttc act atg ttt ccc agt ctg gtt tca aac ttc  294
Gln Ser Arg Arg Cys Phe Thr Met Phe Pro Ser Leu Val Ser Asn Phe
  71                      76                      81                      86

tgg cct caa gca att ccc ctg cct cac cct ccc aaa gtg ctg gga tta/  342
Trp Pro Gln Ala Ile Pro Leu Pro His Pro Pro Lys Val Leu Gly Leu
  87                      92                      97                      102

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cag gaa gat gac gat tca gag act gaa aaa cct gag gct gat gac cca Gln Glu Asp Asp Asp Ser Glu Thr Glu Lys Pro Glu Ala Asp Asp Pro 103 108 113 118	390
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tcc ttt tct gaa aga gtt cgg aac atg tcg cct gat gaa atc aag atc Ser Phe Ser Glu Arg Val Arg Asn Met Ser Pro Asp Glu Ile Lys Ile 135 140 145 150	486
ccg cca gaa ccc cct ggc aga tgt tca aat cac ttg caa gac aag atc Pro Pro Glu Pro Pro Gly Arg Cys Ser Asn His Leu Gln Asp Lys Ile 151 156 161 166	534
cag aag ctt tat gaa cga aag ata aag gag gga atg gat atg aac tac Gln Lys Leu Tyr Glu Arg Lys Ile Lys Glu Gly Met Asp Met Asn Tyr 167 172 177 182	582
att atc caa agg aag aaa gaa ttt cgg aac cct agc atc tac gag aag Ile Ile Gln Arg Lys Lys Glu Phe Arg Asn Pro Ser Ile Tyr Glu Lys 183 188 193 198	630
ctg atc cag ttc tgt gcc att gac gag ctt ggc acc aac tac cca aag Leu Ile Gln Phe Cys Ala Ile Asp Glu Leu Gly Thr Asn Tyr Pro Lys 199 204 209 214	678
gat atg ttt gat ccc cat ggc tgg tct gag gac tcc tac tat gag gca Asp Met Phe Asp Pro His Gly Trp Ser Glu Asp Ser Tyr Tyr Glu Ala 215 220 225 230	726
tta gcc aag gcc cag aaa att gag atg gac aaa ttg gaa aag gcc aaa Leu Ala Lys Ala Gln Lys Ile Glu Met Asp Lys Leu Glu Lys Ala Lys 231 236 241 246	774
aag gag cga aca aaa gct tgt tgc agg gac gtg tct gca gcg cct ggg Lys Glu Arg Thr Lys Ala Cys Cys Arg Asp Val Ser Ala Ala Pro Gly 247 252 257 262	822
gaa ccg agc tgt cct tcc cct gtg cgg gcg ggc acc gcc tcc tcc tgg Glu Pro Ser Cys Pro Ser Pro Val Arg Ala Gly Thr Ala Ser Ser Trp 263 268 273 278	870
att gag ttt gtg acg ggc acc aaa aaa ggc acc acg acc aac gcc aca Ile Glu Phe Val Thr Gly Thr Lys Lys Gly Thr Thr Thr Asn Ala Thr 279 284 289 294	918
tcc acc acc act acc act gcc agc aaa gct gtt gca gat gct cag aag Ser Thr Thr Thr Thr Thr Ala Ser Lys Ala Val Ala Asp Ala Gln Lys 295 300 305 310	966
aga aag agc aag tgg gat tcg gct atc cca gtg aca acg ata gcc cag Arg Lys Ser Lys Trp Asp Ser Ala Ile Pro Val Thr Thr Ile Ala Gln 311 316 321 326	1014

ccc acc atc ctc acc acc aca gcc acc ctg cca gct gtt gtc acg gtc 1062
Pro Thr Ile Leu Thr Thr Thr Ala Thr Leu Pro Ala Val Val Thr Val
327 332 337 342

acc acc agc gcc agc ggc tcc aag acc acc gtc atc tct gct gtg ggc 1110
Thr Thr Ser Ala Ser Gly Ser Lys Thr Thr Val Ile Ser Ala Val Gly
343 348 353 358

acc att gtg aag aag gcc aag cag tga cctga gggggccaccc taggacttga 1162
Thr Ile Val Lys Lys Ala Lys Gln *
359 364

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actgggacct actccccaga tgccacctga gaggagcttc tgtttgcat tccagatgga 1282

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7 12 17 22

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Asp Gly Glu Ala Gly Ile Glu Ala Val Gly Ser Ala Ala Glu Glu Lys
23 28 33 38

ggc gga ttg gta tct gat gcc tat ggg gag gat gac ttt tct cgt cta 198
Gly Gly Leu Val Ser Asp Ala Tyr Gly Glu Asp Asp Phe Ser Arg Leu
39 44 49 54

ggg ggt gat gaa gat ggt tat gaa gaa gaa gaa gat gag aac agt aga 246
Gly Gly Asp Glu Asp Gly Tyr Glu Glu Glu Glu Asp Glu Asn Ser Arg

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cag tcg gat aat aca gaa gca gaa aag cga gac ccc cag gaa ctc gtg				294
Gln Ser Asp Asn Thr Glu Ala Glu Lys Arg Asp Pro Gln Glu Leu Val				
71	76	81	86	
gcc tcc ttt tct gaa aga gtt cgg aac atg tcg cct gat gaa atc aag				342
Ala Ser Phe Ser Glu Arg Val Arg Asn Met Ser Pro Asp Glu Ile Lys				
87	92	97	102	
atc ccg cca gaa ccc cct ggc aga tgt tca aat cac ttg caa gac aag				390
Ile Pro Pro Glu Pro Pro Gly Arg Cys Ser Asn His Leu Gln Asp Lys				
103	108	113	118	
atc cag aag ctt tat gaa cga aag ata aag gag gga atg gat atg aac				438
Ile Gln Lys Leu Tyr Glu Arg Lys Ile Lys Glu Gly Met Asp Met Asn				
119	124	129	134	
tac att atc caa agg aag aaa gaa ttt cgg aac cct agc atc tac gag				486
Tyr Ile Ile Gln Arg Lys Lys Glu Phe Arg Asn Pro Ser Ile Tyr Glu				
135	140	145	150	
aag ctg atc cag ttc tgt gcc att gac gag ctt ggc acc aac tac cca				534
Lys Leu Ile Gln Phe Cys Ala Ile Asp Glu Leu Gly Thr Asn Tyr Pro				
151	156	161	166	
aag gat atg ttt gat ccc cat ggc tgg tct gag gac tcc tac tat gag				582
Lys Asp Met Phe Asp Pro His Gly Trp Ser Glu Asp Ser Tyr Tyr Glu				
167	172	177	182	
gca tta gcc aag gcc cag aaa att gag atg gac aaa ttg gaa aag gcc				630
Ala Leu Ala Lys Ala Gln Lys Ile Glu Met Asp Lys Leu Glu Lys Ala				
183	188	193	198	
aaa aag gag cga aca aaa att gag ttt gtg acg ggc acc aaa aaa ggc				678
Lys Lys Glu Arg Thr Lys Ile Glu Phe Val Thr Gly Thr Lys Lys Gly				
199	204	209	214	
acc acg acc aac gcc acg tcc acc acc act acc act gcc agc aca gct				726
Thr Thr Thr Asn Ala Thr Ser Thr Thr Thr Thr Thr Ala Ser Thr Ala				
215	220	225	230	
gtt gca gat gct cag aag aga aag agc aag tgg gat tcg gct atc cca				774
Val Ala Asp Ala Gln Lys Arg Lys Ser Lys Trp Asp Ser Ala Ile Pro				
231	236	241	246	
gtg aca acg ata gcc cag ccc acc atc ctc acc acc aca gcc acc ctg				822
Val Thr Thr Ile Ala Gln Pro Thr Ile Leu Thr Thr Thr Ala Thr Leu				
247	252	257	262	
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Pro Ala Val Val Thr Val Thr Thr Ser Ala Ser Gly Ser Lys Thr Thr				
263	268	273	278	
gtc atc tct gct gtg ggc acc att gtg aag aag gcc aag cag tga cct				918
Val Ile Ser Ala Val Gly Thr Ile Val Lys Lys Ala Lys Gln *				
279	284	289		

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 Met
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 ccc aag ttt tat tgt gac tac tgc gat aca tac ctc acc cat gac tct 164
 Pro Lys Phe Tyr Cys Asp Tyr Cys Asp Thr Tyr Leu Thr His Asp Ser
 2 7 12 17
 cca tct gtg aga aag aca cac tgc agt gga agg aaa cac aaa gag aat 212
 Pro Ser Val Arg Lys Thr His Cys Ser Gly Arg Lys His Lys Glu Asn
 18 23 28 33
 gtg aaa gac tat tat cag aaa tgg atg gaa gag cag gct cag agc ctg 260
 Val Lys Asp Tyr Tyr Gln Lys Trp Met Glu Glu Gln Ala Gln Ser Leu
 34 39 44 49
 att gac aaa aca acg gct gca ttt caa caa gga aag ata cct cct act 308
 Ile Asp Lys Thr Thr Ala Ala Phe Gln Gln Gly Lys Ile Pro Pro Thr
 50 55 60 65
 cca ttc tct gct cct cct cct gca ggg gcg atg ata cca cct ccc ccc 356
 Pro Phe Ser Ala Pro Pro Pro Ala Gly Ala Met Ile Pro Pro Pro Pro
 66 71 76 81
 agc ctt ccg ggt cct cct cgc cct ggt atg atg cca gca ccc cat atg 404

Ser	Leu	Pro	Gly	Pro	Pro	Arg	Pro	Gly	Met	Met	Pro	Ala	Pro	His	Met	
82					87					92					97	
ggg	ggc	cct	ccc	atg	atg	cca	atg	atg	ggc	cct	cct	cct	cct	ggg	atg	452
Gly	Gly	Pro	Pro	Met	Met	Pro	Met	Met	Gly	Pro	Pro	Pro	Pro	Gly	Met	
98					103				108					113		
atg	cca	gtg	gga	cct	gct	cct	gga	atg	agg	ccg	ccc	atg	gga	ggc	cat	500
Met	Pro	Val	Gly	Pro	Ala	Pro	Gly	Met	Arg	Pro	Pro	Met	Gly	Gly	His	
114					119				124					129		
atg	cca	atg	atg	cct	ggg	ccc	cca	atg	atg	aga	cct	cct	gcc	cgt	ccc	548
Met	Pro	Met	Met	Pro	Gly	Pro	Pro	Met	Met	Arg	Pro	Pro	Ala	Arg	Pro	
130					135				140					145		
atg	atg	gtg	ccc	act	cgg	ccc	gga	atg	act	cga	cca	gac	aga	taa	gga	596
Met	Met	Val	Pro	Thr	Arg	Pro	Gly	Met	Thr	Arg	Pro	Asp	Arg	*		
146					151				156							
tagaggggag	gccttattgt	atcggtttta	tatttatatt	ctgcttcacc	aggagatcat											656
gctgctgtga	tactgagttt	tctaaacagc	ataaggaaga	cttgctcccc	tgtcctatga											716
aagagaatag	ttttggaggg	gagaagtggg	acaaaaaaga	tgcagttttc	ctttgtattg											776
ggaaatgtga	aaataaaaatt	gtcaactott	tcagttaata	aaaaaaaaaa	a											827
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aagcaatgct	gtctgtgaat	aacatggcta	atttcttcgt	agggtgattt	ctaacctaga											180
agcaagaaat	ttggggccaa	gattaacacc	cctcctgcag	gaggaagaca	gccaccagcg											240
gctgctc	atg ggg ctg atg gtg tct gag cta aaa gac cat ttt ttg aga															289
	Met Gly Leu Met Val Ser Glu Leu Lys Asp His Phe Leu Arg															
	1			5					10							
cac cta cag ggt gta gaa aag aag aaa att gaa cag atg gtt ctg gac																337
His Leu Gln Gly Val Glu Lys Lys Lys Ile Glu Gln Met Val Leu Asp																
15				20					25						30	
tac att tca aaa ctg ctg gat ctc att tgc cac atc gta gaa acc aat																385

Tyr Ile Ser Lys Leu Leu Asp Leu Ile Cys His Ile Val Glu Thr Asn	
31 36 41 46	
tgg agg aaa cat aat ctt cat tcc tgg gtt ctc cac ttc aat agt cgt	433
Trp Arg Lys His Asn Leu His Ser Trp Val Leu His Phe Asn Ser Arg	
47 52 57 62	
ggc agt gct gct gaa ttt gca gtt ttt cac atc atg acc agg att ctg	481
Gly Ser Ala Ala Glu Phe Ala Val Phe His Ile Met Thr Arg Ile Leu	
63 68 73 78	
gaa gct aca aac agt ttg ttt tta cct ctg cct cct ggt ttt cat act	529
Glu Ala Thr Asn Ser Leu Phe Leu Pro Leu Pro Pro Gly Phe His Thr	
79 84 89 94	
ctg cac acc atc ctc ggg gtc cag tgt ctc cct ttg cat aac ctg ctg	577
Leu His Thr Ile Leu Gly Val Gln Cys Leu Pro Leu His Asn Leu Leu	
95 100 105 110	
cat tgc att gac agt gga gtg ttg ctt ctc act gaa aca gct gtc ata	625
His Cys Ile Asp Ser Gly Val Leu Leu Leu Thr Glu Thr Ala Val Ile	
111 116 121 126	
agg ctc atg aaa gat ctg gat aat aca gag aaa aat gaa aaa ctg aaa	673
Arg Leu Met Lys Asp Leu Asp Asn Thr Glu Lys Asn Glu Lys Leu Lys	
127 132 137 142	
ttc agt atc att gtg cgg ett cct ccg ctt att ggg cag aag att tgt	721
Phe Ser Ile Ile Val Arg Leu Pro Pro Leu Ile Gly Gln Lys Ile Cys	
143 148 153 158	
aga ctt tgg gat cat cct atg agt tct aac atc att tcg cgg aac cac	769
Arg Leu Trp Asp His Pro Met Ser Ser Asn Ile Ile Ser Arg Asn His	
159 164 169 174	
gtg acg cga ctg ctt cag aac tat aag aaa cag cct cgg aat tct atg	817
Val Thr Arg Leu Leu Gln Asn Tyr Lys Lys Gln Pro Arg Asn Ser Met	
175 180 185 190	
att aac aag tca tcg ttc agt gta gaa ttt ctg cct ctg aac tac ttc	865
Ile Asn Lys Ser Ser Phe Ser Val Glu Phe Leu Pro Leu Asn Tyr Phe	
191 196 201 206	
att gaa att ctg aca gat ata gag tcc tcc aat caa gcc ctg tat cct	913
Ile Glu Ile Leu Thr Asp Ile Glu Ser Ser Asn Gln Ala Leu Tyr Pro	
207 212 217 222	
ttt gaa gga cat gac aat gtg gat gca gaa ttt gta gag gaa gca gct	961
Phe Glu Gly His Asp Asn Val Asp Ala Glu Phe Val Glu Glu Ala Ala	
223 228 233 238	
ctg aaa cac acc gcg atg ctt tta ggc tta tga aaaagaaa acgcaattgg	1012
Leu Lys His Thr Ala Met Leu Leu Gly Leu *	
239 244 249	
atctgctgct gccatttttaa tcttgctcat taaccttact cctttgagaa ttctttaaca	1072

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atatttaaaa ttggttaacaa aaatagttta gccataattg tttagccatg tgagtttcag 1132
gttggtacac gttcagacag aactgctgta tcacattcca attttgaata gccagtgagc 1192
aatcaagtgt agagaaatga taaatggcct aagaaggcat acagtggcat aaacgatgct 1252
cttcctagta gcttaatagg ccacaagcta gtttctgttg cactctgaaa taaaatatgc 1312
tttaaaaaatg tagggaacag tgcttagaaa agcaaaaact aggtgtgtca ttgaaataat 1372
aggcataaaa attaaatggt acataagaac actatattgga aagaggggtcc ttttaaaaac 1432
tgaatttgta ctaaatacaga tttgccatgt ccagtacaga ataatttgta cttagtattt 1492
gcagcagggt ttgtctttgt gaattcagat gaaacatatt tatttttttt tatttataaa 1552
aggttgattt aggaatatatt tgtcagtcac taaaaaacct gaaaacataa aaaaaaaaaa 1612

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<212> DNA
<213> Homo sapiens

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<222> (3)..(866)

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    Met Ser Leu His Ala Tyr Val Ser Leu Asp Pro Leu Glu Arg Pro
      1             5             10

cgg gca gac ccg gag gga acg gag gaa gcg gtc atg tct cgc tac acg 95
Arg Ala Asp Pro Glu Gly Thr Glu Glu Ala Val Met Ser Arg Tyr Thr
  16             21             26             31

agg ccc ccc aac acc tcc ctg ttc atc agg aac gtc gcg gac gcc acc 143
Arg Pro Pro Asn Thr Ser Leu Phe Ile Arg Asn Val Ala Asp Ala Thr
  32             37             42             47

agg cct gag gac ttg cgc cgt gag ttt ggt cga tat ggc cct ata gta 191
Arg Pro Glu Asp Leu Arg Arg Glu Phe Gly Arg Tyr Gly Pro Ile Val
  48             53             58             63

gac gtt tac att cca ctt gac ttc tac act cgc cgc cca aga gga ttt 239
Asp Val Tyr Ile Pro Leu Asp Phe Tyr Thr Arg Arg Pro Arg Gly Phe
  64             69             74             79

gct tat gtt caa ttt gaa gat gtt cga gat gct gaa gat gct ctt tat 287
Ala Tyr Val Gln Phe Glu Asp Val Arg Asp Ala Glu Asp Ala Leu Tyr
  80             85             90             95

aac ctc aat aga aag tgg gta tgt ggc cgt cag att gaa ata cag ttt 335
Asn Leu Asn Arg Lys Trp Val Cys Gly Arg Gln Ile Glu Ile Gln Phe

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<212> DNA
 <213> Homo sapiens
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 <221> CDS
 <222> (263) .. (1960)

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tgcgccggcg cccgagcccg ctctggccgc tggatgatct gaagctgccc tctctccttc	180
atttatatca ccagcttgct ttttgctgag aaagcttcct gccctggaag atggcacct	240
tcccatcca gacaccttgg ga atg aat tat gag gga gcc agg agt gag aga	292
Met Asn Tyr Glu Gly Ala Arg Ser Glu Arg	
1 5	
gag aac cac gct gct gat gac tcc gag gga ggg gcc ctg gac atg tgc	340
Glu Asn His Ala Ala Asp Asp Ser Glu Gly Gly Ala Leu Asp Met Cys	
11 16 21 26	
tgc agt gag agg cta ccg ggt ctc ccc cag ccg ata gtg atg gag gca	388
Cys Ser Glu Arg Leu Pro Gly Leu Pro Gln Pro Ile Val Met Glu Ala	
27 32 37 42	
ctg gac gag gct gaa ggg ctc cag gac tca cag aga gag atg ccg cca	436
Leu Asp Glu Ala Glu Gly Leu Gln Asp Ser Gln Arg Glu Met Pro Pro	
43 48 53 58	
ccc cct cct ccc tcg ccg ccc tca gat cca gct cag aag cca cca cct	484
Pro Pro Pro Pro Ser Pro Pro Ser Asp Pro Ala Gln Lys Pro Pro Pro	
59 64 69 74	
cga ggc gct ggg agc cac tcc ctc act gtc agg agc agc ctg tgc ctg	532
Arg Gly Ala Gly Ser His Ser Leu Thr Val Arg Ser Ser Leu Cys Leu	
75 80 85 90	
ttc gct gcc tca cag ttc ctg ctt gcc tgt ggg gtg ctc tgg ttc agc	580
Phe Ala Ala Ser Gln Phe Leu Leu Ala Cys Gly Val Leu Trp Phe Ser	
91 96 101 106	
ggc tat ggc cac atc tgg tca cag aac gcc aca aac ctc gtc tcc tct	628
Gly Tyr Gly His Ile Trp Ser Gln Asn Ala Thr Asn Leu Val Ser Ser	
107 112 117 122	
ttg ctg acg ctc ctg aaa cag ctg gaa ccc acg gcc tgg ctt gac tct	676
Leu Leu Thr Leu Leu Lys Gln Leu Glu Pro Thr Ala Trp Leu Asp Ser	
123 128 133 138	
ggg acg tgg gga gtc ccc agt ctg ctg ctg gtc ttt ctg tcc gtg ggc	724
Gly Thr Trp Gly Val Pro Ser Leu Leu Leu Val Phe Leu Ser Val Gly	
139 144 149 154	
ctg gtc ctc gtt acc acc ctg gtg tgg cac ctc ctg agg aca ccc cca	772

Leu Val Leu Val Thr Thr Leu Val Trp His Leu Leu Arg Thr Pro Pro	
155 160 165 170	
gag cca ccc acc cca ctg ccc cct gag gac agg cgc cag tca gtg agc	820
Glu Pro Pro Thr Pro Leu Pro Pro Glu Asp Arg Arg Gln Ser Val Ser	
171 176 181 186	
cgc cag ccc tcc ttc acc tac tca gag tgg atg gag gag aag atc gag	868
Arg Gln Pro Ser Phe Thr Tyr Ser Glu Trp Met Glu Glu Lys Ile Glu	
187 192 197 202	
gat gac ttc ctg gac ctc gac ccg gtg ccc gag act cct gtg ttt gat	916
Asp Asp Phe Leu Asp Leu Asp Pro Val Pro Glu Thr Pro Val Phe Asp	
203 208 213 218	
tgt gtg atg gac atc aag cct gag gct gac ccc acc tca ctc acc gtc	964
Cys Val Met Asp Ile Lys Pro Glu Ala Asp Pro Thr Ser Leu Thr Val	
219 224 229 234	
aag tcc atg ggt ctg cag gag agg agg ggt tcc aat gtc tcc ctg acc	1012
Lys Ser Met Gly Leu Gln Glu Arg Arg Gly Ser Asn Val Ser Leu Thr	
235 240 245 250	
ctg gac atg tgc act ccg ggc tgc aac gag gag ggc ttt ggc tat ctc	1060
Leu Asp Met Cys Thr Pro Gly Cys Asn Glu Glu Gly Phe Gly Tyr Leu	
251 256 261 266	
atg tcc cca cgt gag gag tcc gcc cgc gag tac ctg ctc agc gcc tcc	1108
Met Ser Pro Arg Glu Glu Ser Ala Arg Glu Tyr Leu Leu Ser Ala Ser	
267 272 277 282	
cgt gtc ctc caa gca gaa gag ctt cat gaa aag gcc ctg gac cct ttc	1156
Arg Val Leu Gln Ala Glu Glu Leu His Glu Lys Ala Leu Asp Pro Phe	
283 288 293 298	
ctg ctg cag gcg gaa ttc ttt gaa atc ccc atg aac ttt gtg gat ccg	1204
Leu Leu Gln Ala Glu Phe Phe Glu Ile Pro Met Asn Phe Val Asp Pro	
299 304 309 314	
aaa gag tac gac atc cct ggg ctg gtg cgg aag aac cgg tac aaa acc	1252
Lys Glu Tyr Asp Ile Pro Gly Leu Val Arg Lys Asn Arg Tyr Lys Thr	
315 320 325 330	
ata ctt ccc aac cct cac agc aga gtg tgt ctg acc tca cca gac cct	1300
Ile Leu Pro Asn Pro His Ser Arg Val Cys Leu Thr Ser Pro Asp Pro	
331 336 341 346	
gac gac cct ctg agt tcc tac atc aat gcc aac tac atc cgg ggc tat	1348
Asp Asp Pro Leu Ser Ser Tyr Ile Asn Ala Asn Tyr Ile Arg Gly Tyr	
347 352 357 362	
ggg ggg gag gag aag gtg tac atc gcc act cag gga ccc atc gtc agc	1396
Gly Gly Glu Glu Lys Val Tyr Ile Ala Thr Gln Gly Pro Ile Val Ser	
363 368 373 378	
acg gtc gcc gac ttc tgg cgc atg gtg tgg cag gag cac acg ccc atc	1444
Thr Val Ala Asp Phe Trp Arg Met Val Trp Gln Glu His Thr Pro Ile	

379	384	389	394	
att gtc atg atc acc aac atc gag gag atg aac gag aaa tgc acc gag				1492
Ile Val Met Ile Thr Asn Ile Glu Glu Met Asn Glu Lys Cys Thr Glu				
395	400	405	410	
tat tgg ccg gag gag cag gtg gcg tac gac ggt gtt gag atc act gtg				1540
Tyr Trp Pro Glu Glu Gln Val Ala Tyr Asp Gly Val Glu Ile Thr Val				
411	416	421	426	
cag aaa gtc att cac acg gag gat tac cgg ctg cga ctc atc tcc ctc				1588
Gln Lys Val Ile His Thr Glu Asp Tyr Arg Leu Arg Leu Ile Ser Leu				
427	432	437	442	
aag agt ggg act gag gag cga ggc ctg aag cat tac tgg ttc aca tcc				1636
Lys Ser Gly Thr Glu Glu Arg Gly Leu Lys His Tyr Trp Phe Thr Ser				
443	448	453	458	
tgg ccc gac cag aag acc cca gac cgg gcc ccc cca ctc ctg cac ctg				1684
Trp Pro Asp Gln Lys Thr Pro Asp Arg Ala Pro Pro Leu Leu His Leu				
459	464	469	474	
gtg cgg gag gtg gag gag gca gcc cag cag gag ggg ccc cac tgt gcc				1732
Val Arg Glu Val Glu Glu Ala Ala Gln Gln Glu Gly Pro His Cys Ala				
475	480	485	490	
ccc atc atc gtc cac tgc agt gca ggg att ggg agg acc ggc tgc ttc				1780
Pro Ile Ile Val His Cys Ser Ala Gly Ile Gly Arg Thr Gly Cys Phe				
491	496	501	506	
att gcc acc agc atc tgc tgc cag cag ctg cgg cag gag ggt gta gtg				1828
Ile Ala Thr Ser Ile Cys Cys Gln Gln Leu Arg Gln Glu Gly Val Val				
507	512	517	522	
gac atc ctg aag acc acg tgc cag ctc cgt cag gac agg ggc ggc atg				1876
Asp Ile Leu Lys Thr Thr Cys Gln Leu Arg Gln Asp Arg Gly Gly Met				
523	528	533	538	
atc cag cac tgc gag cag tac cag ttt gtg cac cac gtc atg agc ctc				1924
Ile Gln His Cys Glu Gln Tyr Gln Phe Val His His Val Met Ser Leu				
539	544	549	554	
tac gaa aag cag ctg tcc cac cag tcc cca gaa tga ctgc gcttctccta				1974
Tyr Glu Lys Gln Leu Ser His Gln Ser Pro Glu *				
555	560	565		
caagggtctc tgggcactgc ccagcctgag tctcggccct caccagggc cctgcctcgg				2034
gtcctggggc tgctccccgc ttcctcccct tcagtcagct ccctctgtcc tctgtcagcc				2094
tggcctgacc cctaccctcc agcattgctc ttcctactgt acatattggg gagtgggggg				2154
cagggctcggg aagggacatg ccaggccagg cgtggggccc cggggcctga cccacaccac				2214
gcagaccccc ggctccagtt tttaacgatg gttccatcaa tacctgatcc agaatgtttc				2274
cgtgctacac tttgtgtcct gctgcaatgt gttctgtctg tccatccatc tctgccctct				2334

gtaccggaca ctgtgtctcc tcagccagga aggggtaatg agctccagcc cctaagcaac 2394
cggacttgcc tgcctcggcc tcacccgcac ttctcccaaaggcagatga cggggagtta 2454
ggcatgggga gctccagaag gtcaccagag agctttcagc tgagggagag ttctctaggt 2514
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agcctgtgag gcactggca 2593

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<213> Homo sapiens

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<222> (215)..(1372)

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ccggcatccc cgccgcctct gcgcccgcgc cgcgcccccg gcgccccctc cccagcgcgc 180
ccccggcgcg tcctccgcgc cgcgctcgtc ggcc atg gcc cgg gag aac ggc 232
Met Ala Arg Glu Asn Gly
1
gag agc agc tcc tcc tgg aaa aag caa gct gaa gac atc aag aag atc 280
Glu Ser Ser Ser Ser Trp Lys Lys Gln Ala Glu Asp Ile Lys Lys Ile
7 12 17 22
ttc gag ttc aaa gag acc ctc gga acc ggg gcc ttt tcc gaa gtg gtt 328
Phe Glu Phe Lys Glu Thr Leu Gly Thr Gly Ala Phe Ser Glu Val Val
23 28 33 38
tta gct gaa gag aag gca act ggc aag ctc ttt gct gtg aag tgt atc 376
Leu Ala Glu Glu Lys Ala Thr Gly Lys Leu Phe Ala Val Lys Cys Ile
39 44 49 54
cct aag aag gcg ctg aag ggc aag gaa agc agc ata gag aat gag ata 424
Pro Lys Lys Ala Leu Lys Gly Lys Glu Ser Ser Ile Glu Asn Glu Ile
55 60 65 70
gcc gtc ctg aga aag att aag cat gaa aat att gtt gcc ctg gaa gac 472
Ala Val Leu Arg Lys Ile Lys His Glu Asn Ile Val Ala Leu Glu Asp
71 76 81 86
att tat gaa agc cca aat cac ctg tac ttg gtc atg cag ctg gtg tcc 520
Ile Tyr Glu Ser Pro Asn His Leu Tyr Leu Val Met Gln Leu Val Ser
87 92 97 102

agc ctg gac agt tca aat gca agt gtt tcg agc agc ctc agt ttg gcc	1240
Ser Leu Asp Ser Ser Asn Ala Ser Val Ser Ser Ser Leu Ser Leu Ala	
327 332 337 342	
agc caa aaa gac tgt ctg gca cct tcc acg ctc tgt agt ttc att tct	1288
Ser Gln Lys Asp Cys Leu Ala Pro Ser Thr Leu Cys Ser Phe Ile Ser	
343 348 353 358	
tct tcg tcg ggg gtc tca gga gtt gga gcc gag cgg aga ccc agg ccc	1336
Ser Ser Ser Gly Val Ser Gly Val Gly Ala Glu Arg Arg Pro Arg Pro	
359 364 369 374	
acc act gtg acg gca gtg cac tct gga agc aag tga ctgg ccctggaggt	1386
Thr Thr Val Thr Ala Val His Ser Gly Ser Lys * ₁	
375 380 385	
ggggccccggg gtcggggctg gggaagggga gccccagggt cgccagagcc gcgagccact	1446
ccagcgagac cccaccttgc atggtgcccc ttctgcata ggactggaag accgaagttt	1506
ttttatggcc atattttcta ctgcaattct gaagtgttca tttctcacia actgtactga	1566
ctcgagggggc gctgatttca taggatctgg tgctgtatat acgaatcttg caaagctcta	1626
actgaacgga ccttcttatt cctctccctt aacaccatcg tttccactct tctcagtga	1686
ggtaaccgtc tatggtgtgt tttttcatta atgacaaaaa aaaaaaa	1733

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Met Ala Arg	
1	
cta ccg aag ctg gca gtc ttt gat ttg gat tac act ctc tgg cct ttc	165
Leu Pro Lys Leu Ala Val Phe Asp Leu Asp Tyr Thr Leu Trp Pro Phe	
4 9 14 19	
tgg gtc gac acg cac gta gac cct ccg ttc cat aag agc agt gat gga	213
Trp Val Asp Thr His Val Asp Pro Pro Phe His Lys Ser Ser Asp Gly	
20 25 30 35	
act gta cga gat agg cgg ggc caa gac gtc cga ctg tac cca gag gtg	261
Thr Val Arg Asp Arg Arg Gly Gln Asp Val Arg Leu Tyr Pro Glu Val	

36	41	46	51	
cct gag gtc cta aaa cga ttg cag agc ctt ggg gtg ccc ggt gcg gct				309
Pro Glu Val Leu Lys Arg Leu Gln Ser Leu Gly Val Pro Gly Ala Ala				
52	57	62	67	
gct tca agg aca agt gag ata gaa ggg gcc aac cag cta ctg gag ctc				357
Ala Ser Arg Thr Ser Glu Ile Glu Gly Ala Asn Gln Leu Leu Glu Leu				
68	73	78	83	
ttt gac ctc ttc agg tac ttt gtt cat cgg gaa atc tat cca ggc agc				405
Phe Asp Leu Phe Arg Tyr Phe Val His Arg Glu Ile Tyr Pro Gly Ser				
84	89	94	99	
aag atc aca cac ttt gag agg ttg cag cag aag act gga att cct ttc				453
Lys Ile Thr His Phe Glu Arg Leu Gln Gln Lys Thr Gly Ile Pro Phe				
100	105	110	115	
tcc cag atg atc ttc ttt gat gat gag agg cgg aat att gta gac gtc				501
Ser Gln Met Ile Phe Phe Asp Asp Glu Arg Arg Asn Ile Val Asp Val				
116	121	126	131	
agc aaa ctg ggt gtt acc tgc att cac atc cag aat gga atg aat ctt				549
Ser Lys Leu Gly Val Thr Cys Ile His Ile Gln Asn Gly Met Asn Leu				
132	137	142	147	
caa act cta agt caa ggg tta gag aca ttt gcg aag gcc caa act ggg				597
Gln Thr Leu Ser Gln Gly Leu Glu Thr Phe Ala Lys Ala Gln Thr Gly				
148	153	158	163	
cct ttg agg tcc agc ctt gag gag agc cca ttt gag gcc taa actgaaa				646
Pro Leu Arg Ser Ser Leu Glu Glu Ser Pro Phe Glu Ala *				
164	169	174		
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cagaagagat tttaaaaaaa aaaaa				731

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 <213> Homo sapiens

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atg agg agg	
Met Arg Arg	
1	

tcg ctg aga gct ggg aag agg cgg cag aca gcg ggg aaa tcc aaa tct	163
Ser Leu Arg Ala Gly Lys Arg Arg Gln Thr Ala Gly Lys Ser Lys Ser	
4 9 14 19	
cct ccc aaa gtg ccc att gtg att cag gac gat agc ctt ccc gcg ggg	211
Pro Pro Lys Val Pro Ile Val Ile Gln Asp Asp Ser Leu Pro Ala Gly	
20 25 30 35	
ccc cct cca cag atc cgc atc ctc aag agg ccc acc agc aac ggt gtg	259
Pro Pro Pro Gln Ile Arg Ile Leu Lys Arg Pro Thr Ser Asn Gly Val	
36 41 46 51	
gtc agc agc ccc aac tcc acc agc agg ccc acc ctt cca gtc aag tcc	307
Val Ser Ser Pro Asn Ser Thr Ser Arg Pro Thr Leu Pro Val Lys Ser	
52 57 62 67	
cta gca cag cga gag gcc gag tac gcc gag gcc cgg aag cgg atc ctg	355
Leu Ala Gln Arg Glu Ala Glu Tyr Ala Glu Ala Arg Lys Arg Ile Leu	
68 73 78 83	
ggc agc gcc agc ccc gag gag gag cag gag aaa ccc atc ctc gac agg	403
Gly Ser Ala Ser Pro Glu Glu Glu Gln Glu Lys Pro Ile Leu Asp Arg	
84 89 94 99	
cca acc agg atc tcc caa ccc gaa gac agc agg cag ccc aat aat gtg	451
Pro Thr Arg Ile Ser Gln Pro Glu Asp Ser Arg Gln Pro Asn Asn Val	
100 105 110 115	
atc aga cag cct ttg ggt cct gat ggg tct caa ggc ttc aaa cag cgc	499
Ile Arg Gln Pro Leu Gly Pro Asp Gly Ser Gln Gly Phe Lys Gln Arg	
116 121 126 131	
aga taa atgcaggcaa gaaaagatgc cgccgttgct gccgtcaccg cctcctgggt	555
Arg *	
132	
cgccccccac gggttgcact gccgtggcag acagctggac ttgagcagag ggaacgacct	615
gacttacttg cactgtgatc ccccttgctc cgcccactgt gaccttgaac cccatgcact	675
gtgacctccc ccccttctccc ccttcccact gtgattggca catcgacaag ggctgtccca	735
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49 54 59 64

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Thr Val Val Ser Glu Lys Gln Phe Ser Lys Arg Tyr Leu Lys Tyr Leu
65 70 75 80
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Gln Asp Glu Asp Glu Ser Glu Ser Glu Asp *				
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Ile Leu Gly Val Ile Asp Lys Lys Leu Arg Asn Leu Glu Lys Lys Lys				
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Val Asp Glu Trp Thr	Val Glu Thr	Val Glu	Val Val Asn Ser Leu Gln	
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538 543 548 553	
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Thr Ser Leu Pro Ser Arg Leu Asp Ser Val Pro Arg Asn Thr Asp Ser	
554 559 564 569	
cct cgg gct gca ttg agc agc tct gag ctt ttg gaa ctt ggt gac agc	1779
Pro Arg Ala Ala Leu Ser Ser Ser Glu Leu Leu Glu Leu Gly Asp Ser	
570 575 580 585	
ctc atg aga cta gga gca gag aat gac cca ttt tca act gac acc ctg	1827
Leu Met Arg Leu Gly Ala Glu Asn Asp Pro Phe Ser Thr Asp Thr Leu	
586 591 596 601	
agc tca cac cct ctc agt gag gca aga agt gat ttc tgt ccc tca tct	1875
Ser Ser His Pro Leu Ser Glu Ala Arg Ser Asp Phe Cys Pro Ser Ser	
602 607 612 617	
agt gat cct gac tca gct ggc cag gac ccc aac atc aat gac aat ctt	1923
Ser Asp Pro Asp Ser Ala Gly Gln Asp Pro Asn Ile Asn Asp Asn Leu	
618 623 628 633	
ctc ggc aac atc atg gct tgg ttt cat gac atg aac cct cag agt att	1971
Leu Gly Asn Ile Met Ala Trp Phe His Asp Met Asn Pro Gln Ser Ile	

634	639	644	649	
gcc ctg att cct cca gca act aca gaa atc agt gca gat tcc cag ctc				2019
Ala Leu Ile Pro Pro Ala Thr Thr Glu Ile Ser Ala Asp Ser Gln Leu				
650	655	660	665	
ccc tgt atc aaa gat ggg tca gaa ggt gtg aag gat gtg gaa atg gtg				2067
Pro Cys Ile Lys Asp Gly Ser Glu Gly Val Lys Asp Val Glu Met Val				
666	671	676	681	
ctg cca gaa gat tca atg ttt gaa gat gcc agt gtc agt gaa ggt aga				2115
Leu Pro Glu Asp Ser Met Phe Glu Asp Ala Ser Val Ser Glu Gly Arg				
682	687	692	697	
gga acc cag ata gaa gaa aat cct ttg gaa gaa aat att ctg gcg ggg				2163
Gly Thr Gln Ile Glu Glu Asn Pro Leu Glu Glu Asn Ile Leu Ala Gly				
698	703	708	713	
gaa gca gca tct caa gct ggt gac agt ggt aac gag gca gcc aac aga				2211
Glu Ala Ala Ser Gln Ala Gly Asp Ser Gly Asn Glu Ala Ala Asn Arg				
714	719	724	729	
gga gat ggt tca gat gtt tca agt caa aca cct caa acc tca agt gac				2259
Gly Asp Gly Ser Asp Val Ser Ser Gln Thr Pro Gln Thr Ser Ser Asp				
730	735	740	745	
tggt ctt gaa caa gta cat tta gtg tga actgc acacatctgg gctctaaatg				2311
Trp Leu Glu Gln Val His Leu Val *				
746	751			
aattacaggt acagatggta tgctaggtgg agtatgcttg atagagactt tgattcactt				2371
aattccaact cagtgataaa ccactgacat tagggttgaa tacagagaag ttcccttgaa				2431
tggtagcttc atttttttatt ttaaccttac aggggaatttc ctttgtactt aattgaatag				2491
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ataagttgta ttccacactc taagaaaatg cagtccctcta tttagcctag gcttgacaat				2611
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Glu Glu Glu Asn Gly Gln Gly His Leu Lys Arg Lys Arg Pro Val Lys	
189 194 199 204	
gac agg cta ggg aac aga cca gaa atg aac tat aaa ggt cga tac gag	1033
Asp Arg Leu Gly Asn Arg Pro Glu Met Asn Tyr Lys Gly Arg Tyr Glu	
205 210 215 220	
atc aca gcg gaa gat tct caa gag aaa gtg gct gat gaa att tca ttc	1081
Ile Thr Ala Glu Asp Ser Gln Glu Lys Val Ala Asp Glu Ile Ser Phe	
221 226 231 236	
agg tta cag gaa cca aag aaa gac ctg ata gcc cga gta gtg agg att	1129
Arg Leu Gln Glu Pro Lys Lys Asp Leu Ile Ala Arg Val Val Arg Ile	
237 242 247 252	
att ggt aac aaa aag gca att gaa ctt ctg atg gaa acc gct gaa gtt	1177
Ile Gly Asn Lys Lys Ala Ile Glu Leu Leu Met Glu Thr Ala Glu Val	
253 258 263 268	
gaa caa aat ggt ggt ctc ttt ata atg aat ggt agt cga aga aga aca	1225
Glu Gln Asn Gly Gly Leu Phe Ile Met Asn Gly Ser Arg Arg Arg Thr	
269 274 279 284	
cca ggt gga gtt ttt ctg aat ctc ttg aaa aac act cct agt atc agc	1273
Pro Gly Gly Val Phe Leu Asn Leu Leu Lys Asn Thr Pro Ser Ile Ser	
285 290 295 300	
gag gaa caa att aag gac att ttc tac att gaa aac caa aag gaa tat	1321
Glu Glu Gln Ile Lys Asp Ile Phe Tyr Ile Glu Asn Gln Lys Glu Tyr	
301 306 311 316	
gaa aat aaa aaa gct gct agg aag agg aga aca caa gtg ttg ggg aaa	1369
Glu Asn Lys Lys Ala Ala Arg Lys Arg Arg Thr Gln Val Leu Gly Lys	
317 322 327 332	
aag atg aaa caa gct att aaa agt cta aat ttt caa gaa gat gat gat	1417
Lys Met Lys Gln Ala Ile Lys Ser Leu Asn Phe Gln Glu Asp Asp Asp	
333 338 343 348	
aca tca cga gaa act ttt gca agt gac acg aat gag gcc ttg gcc tct	1465
Thr Ser Arg Glu Thr Phe Ala Ser Asp Thr Asn Glu Ala Leu Ala Ser	
349 354 359 364	
ctt gat gag tca cag gaa gga cat gca gaa gcc aag ttg gag gca gag	1513
Leu Asp Glu Ser Gln Glu Gly His Ala Glu Ala Lys Leu Glu Ala Glu	
365 370 375 380	
gaa gcc att gaa gtt gat cat tct cat gat ttg gac atc ttt taa gta	1561
Glu Ala Ile Glu Val Asp His Ser His Asp Leu Asp Ile Phe *	
381 386 391	
cattttcaac agtttgagga ct	1583

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 Met
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 ggg agc gtc ctg ggg ctg tgc tcc atg gcg agc tgg ata cca tgt ttg 166
 Gly Ser Val Leu Gly Leu Cys Ser Met Ala Ser Trp Ile Pro Cys Leu
 2 7 12 17
 tgt gga agt gcc ccg tgt ttg cta tgc cga tgc tgt cct agt gga aac 214
 Cys Gly Ser Ala Pro Cys Leu Leu Cys Arg Cys Cys Pro Ser Gly Asn
 18 23 28 33
 aac tcc act gta act aga ttg atc tat gca ctt ttc ttg ctt gtt gga 262
 Asn Ser Thr Val Thr Arg Leu Ile Tyr Ala Leu Phe Leu Leu Val Gly
 34 39 44 49
 gta tgt gta gct tgt gta atg ttg ata cca gga atg gaa gaa caa ctg 310
 Val Cys Val Ala Cys Val Met Leu Ile Pro Gly Met Glu Glu Gln Leu
 50 55 60 65
 aat aag att cct gga ttt tgt gag aat gag aaa ggt gtt gtc cct tgt 358
 Asn Lys Ile Pro Gly Phe Cys Glu Asn Glu Lys Gly Val Val Pro Cys
 66 71 76 81
 aac att ttg gtt ggc tat aaa gct gta tat cgt ttg tgc ttt ggt ttg 406
 Asn Ile Leu Val Gly Tyr Lys Ala Val Tyr Arg Leu Cys Phe Gly Leu
 82 87 92 97
 gct atg ttc tat ctt ctt ctc tct tta cta atg atc aaa gtg aag agt 454
 Ala Met Phe Tyr Leu Leu Leu Ser Leu Leu Met Ile Lys Val Lys Ser
 98 103 108 113
 agc agt gat cct aga gct gca gtg cac aat gga ttt tgg ttc ttt aaa 502
 Ser Ser Asp Pro Arg Ala Ala Val His Asn Gly Phe Trp Phe Phe Lys
 114 / 119 124 129
 ttt gct gca gca att gca att att att ggg gca ttc ttc att cca gaa 550

Phe Ala Ala Ala Ile Ala Ile Ile Ile Gly Ala Phe Phe Ile Pro Glu	
130 135 140 145	
gga act ttt aca act gtg tgg ttt tat gta ggc atg gca ggt gcc ttt	598
Gly Thr Phe Thr Thr Val Trp Phe Tyr Val Gly Met Ala Gly Ala Phe	
146 151 156 161	
tgt ttc atc ctc ata caa cta gtc tta ctt att gat ttt gca cat tca	646
Cys Phe Ile Leu Ile Gln Leu Val Leu Leu Ile Asp Phe Ala His Ser	
162 167 172 177	
tgg aat gaa tcg tgg gtt gaa aaa atg gaa gaa ggg aac tcg aga tgt	694
Trp Asn Glu Ser Trp Val Glu Lys Met Glu Glu Gly Asn Ser Arg Cys	
178 183 188 193	
tgg tat gca gcc ttg tta tca gct aca gct ctg aat tat ctg ctg tct	742
Trp Tyr Ala Ala Leu Leu Ser Ala Thr Ala Leu Asn Tyr Leu Leu Ser	
194 199 204 209	
tta gtt gct atc gtc ctg ttc ttt gtc tac tac act cat cca gcc agt	790
Leu Val Ala Ile Val Leu Phe Phe Val Tyr Tyr Thr His Pro Ala Ser	
210 215 220 225	
tgt tca gaa aac aag gcg ttc atc agt gtc aac atg ctc ctc tgc gtt	838
Cys Ser Glu Asn Lys Ala Phe Ile Ser Val Asn Met Leu Leu Cys Val	
226 231 236 241	
ggg gct tct gta atg tct ata ctg cca aaa atc caa gaa tca caa cca	886
Gly Ala Ser Val Met Ser Ile Leu Pro Lys Ile Gln Glu Ser Gln Pro	
242 247 252 257	
aga tct ggt ttg tta cag tct tca gta att aca gtc tac aca atg tat	934
Arg Ser Gly Leu Leu Gln Ser Ser Val Ile Thr Val Tyr Thr Met Tyr	
258 263 268 273	
ttg aca tgg tca gct atg acc aat gaa cca gaa aca aat tgc aac cca	982
Leu Thr Trp Ser Ala Met Thr Asn Glu Pro Glu Thr Asn Cys Asn Pro	
274 279 284 289	
agt cta cta agc ata att ggc tac aat aca aca agc act gtc cca aag	1030
Ser Leu Leu Ser Ile Ile Gly Tyr Asn Thr Thr Ser Thr Val Pro Lys	
290 295 300 305	
gaa ggg cag tca gtc cag tgg tgg cat gct caa gga att ata gga cta	1078
Glu Gly Gln Ser Val Gln Trp Trp His Ala Gln Gly Ile Ile Gly Leu	
306 311 316 321	
att ctc ttt ttg ttg tgt gta ttt tat tcc agc atc cgt act tca aac	1126
Ile Leu Phe Leu Leu Cys Val Phe Tyr Ser Ser Ile Arg Thr Ser Asn	
322 327 332 337	
aat agt cag gtt aat aaa ctg act cta aca agt gat gaa tct aca tta	1174
Asn Ser Gln Val Asn Lys Leu Thr Leu Thr Ser Asp Glu Ser Thr Leu	
338 343 348 353	
ata gaa gat ggt gga gct aga agt gat gga tca ctg gag gat ggg gac	1222
Ile Glu Asp Gly Gly Ala Arg Ser Asp Gly Ser Leu Glu Asp Gly Asp	

354	359	364	369	
gat gtt cac cga gct	gta gat aat gaa agg	gat ggt gtc act tac agt		1270
Asp Val His Arg Ala	Val Asp Asn Glu Arg	Asp Gly Val Thr Tyr Ser		
370	375	380	385	
tat tcc ttc ttt cac	ttc atg ctt ttc ctg	gct tca ctt tat atc atg		1318
Tyr Ser Phe Phe His	Phe Met Leu Phe Leu	Ala Ser Leu Tyr Ile Met		
386	391	396	401	
atg acc ctt acc aac	tgg tac agg tat gaa	ccc tct cgt gag atg aaa		1366
Met Thr Leu Thr Asn	Trp Tyr Arg Tyr Glu	Pro Ser Arg Glu Met Lys		
402	407	412	417	
agt cag tgg aca gct	gtc tgg gtg aaa atc	tct tcc agt tgg att ggc		1414
Ser Gln Trp Thr Ala	Val Trp Val Lys Ile	Ser Ser Ser Trp Ile Gly		
418	423	428	433	
atc gtg ctg tat gtt	tgg aca ctc gtg gca	cca ctt gtt ctt aca aat		1462
Ile Val Leu Tyr Val	Trp Thr Leu Val Ala	Pro Leu Val Leu Thr Asn		
434	439	444	449	
cgt gat ttt gac tga	gtgagacttc tagcatgaaa	gtccacttt gattattgct		1517
Arg Asp Phe Asp *				
450				
tatttgaaaa cagtattccc	aacttttgta aagttgtgta	tgtttttgct tcccatgtaa		1577
cttctccagt gttctggcat	gaattagatt ttactgcttg	tcattttggt attttcttac		1637
caagtgcatt gatatgtgaa	gtagaatgaa ttgcagagga	aagttttatg aatatggtga		1697
tgagttagta aaagtggcca	ctattgggct tattctctgc	tctatagttg tgaaatgaag		1757
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agcattaaag caaatgtatg	gctgcctttt gaaatatttg	atgtgttgcc tggcaggata		1877
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catgaagtat gggttcagtg	gaaatgtttg gaactctgaa	ggatttagac aaggttttga		2177
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attttgacag ggaaggaagt aactgcaaaa cactaggctt tagtaggtac ttatataaaa	2597
tctagtccag ttctcttcat ttaaaaaaat gaagacacga agtacagact taaatagctc	2657
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gga gca gca gcg gcg gag gcg gcg gag acg gcg gaa gca gtc tcc ccg	96
Gly Ala Ala Ala Ala Glu Ala Ala Glu Thr Ala Glu Ala Val Ser Pro	
17 22 27 32	

act ccg atc ccc aca gtc acc gcc ccg tcc ccg agg gcg ggc gga ggg	144
Thr Pro Ile Pro Thr Val Thr Ala Pro Ser Pro Arg Ala Gly Gly Gly	
33 38 43 48	

gtc ggc ggc agc gac ggc agc gac ggt agt ggc ggc agg ggc gac agt	192
Val Gly Gly Ser Asp Gly Ser Asp Gly Ser Gly Gly Arg Gly Asp Ser	
49 54 59 64	

ggc gcg tat gac ggc agc ggt gcg tgc ggc ggc agc gac gcg tgc gat	240
Gly Ala Tyr Asp Gly Ser Gly Ala Cys Gly Gly Ser Asp Ala Cys Asp	
65 70 75 80	

ggc agc ggc gac agc agc ggc gac agc tgg act aaa cag gtc act tgt	288
Gly Ser Gly Asp Ser Ser Gly Asp Ser Trp Thr Lys Gln Val Thr Cys	
81 86 91 96	

aga tat ttt aag tat ggg att tgt aag gaa gga gat aac tgt cgc tac	336
Arg Tyr Phe Lys Tyr Gly Ile Cys Lys Glu Gly Asp Asn Cys Arg Tyr	
97 102 107 112	

tcg cat gac ctc tct gac cgt ctg tgt ggt gta gtg tgc aag tat ttt	384
Ser His Asp Leu Ser Asp Arg Leu Cys Gly Val Val Cys Lys Tyr Phe	
113 118 / 123 128	

cag cga ggg tac tgt att tat gga gac cgc tgc aga tgt gaa cat agc	432
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Gln Arg Gly Tyr Cys Ile Tyr Gly Asp Arg Cys Arg Cys Glu His Ser	
129 134 139 144	
aag cca ttg aaa cag gaa gaa gca act gct aca gag cta act aca aag	480
Lys Pro Leu Lys Gln Glu Glu Ala Thr Ala Thr Glu Leu Thr Thr Lys	
145 150 155 160	
tca tcc ctt gct gct tcc tca agt ctc tca tcg ata gtt gga cca ctt	528
Ser Ser Leu Ala Ala Ser Ser Ser Leu Ser Ser Ile Val Gly Pro Leu	
161 166 171 176	
gtt gaa atg aat aca ggc gaa gct gag tca aga aat tca aac ttt gca	576
Val Glu Met Asn Thr Gly Glu Ala Glu Ser Arg Asn Ser Asn Phe Ala	
177 182 187 192	
act gta gta gca ggt tca gag gac tgg gtg aat gct att gag ttt gtt	624
Thr Val Val Ala Gly Ser Glu Asp Trp Val Asn Ala Ile Glu Phe Val	
193 198 203 208	
cct ggg caa ccc tac tgt ggc cgt act gcg cct tcc tgc act gaa gca	672
Pro Gly Gln Pro Tyr Cys Gly Arg Thr Ala Pro Ser Cys Thr Glu Ala	
209 214 219 224	
ccc ctg cag ggc tca gtg acc aag gaa gaa tca gag aaa gag caa acc	720
Pro Leu Gln Gly Ser Val Thr Lys Glu Glu Ser Glu Lys Glu Gln Thr	
225 230 235 240	
gcc gtg gag aca aag aag cag ctg tgc ccc tat gct gca gtg gga gag	768
Ala Val Glu Thr Lys Lys Gln Leu Cys Pro Tyr Ala Ala Val Gly Glu	
241 246 251 256	
tgc cga tac ggg gag aac tgt gtg tat ctc cac gga gat tct tgt gac	816
Cys Arg Tyr Gly Glu Asn Cys Val Tyr Leu His Gly Asp Ser Cys Asp	
257 262 267 272	
atg tgt ggg ctg cag gtc ctg cat cca atg gat gct gcc cag aga tcg	864
Met Cys Gly Leu Gln Val Leu His Pro Met Asp Ala Ala Gln Arg Ser	
273 278 283 288	
cag cat atc aaa tcg tgc att gag gcc cat gag aag gac atg gag ctc	912
Gln His Ile Lys Ser Cys Ile Glu Ala His Glu Lys Asp Met Glu Leu	
289 294 299 304	
tca ttt gcc gtg cag cgc agc aag gac atg gtg tgt ggg atc tgc atg	960
Ser Phe Ala Val Gln Arg Ser Lys Asp Met Val Cys Gly Ile Cys Met	
305 310 315 320	
gag gtg gtc tat gag aaa gcc aac ccc agt gag cgc cgc ttc ggg atc	1008
Glu Val Val Tyr Glu Lys Ala Asn Pro Ser Glu Arg Arg Phe Gly Ile	
321 326 331 336	
ctc tcc aac tgc aac cac acc tac tgt ctc aag tgc att cgc aag tgg	1056
Leu Ser Asn Cys Asn His Thr Tyr Cys Leu Lys Cys Ile Arg Lys Trp	
337 342 347 352	
agg agt gct aag caa ttt gag agc aag atc ata aag tcc tgc cca gaa	1104
Arg Ser Ala Lys Gln Phe Glu Ser Lys Ile Ile Lys Ser Cys Pro Glu	

353	358	363	368	
tgc cgg atc aca tct aac ttt gtc att cca agt gag tac tgg gtg gag				1152
Cys Arg Ile Thr Ser Asn Phe Val Ile Pro Ser Glu Tyr Trp Val Glu				
369	374	379	384	
gag aaa gaa gag aag cag aaa ctc att ctg aaa tac aag gag gca atg				1200
Glu Lys Glu Glu Lys Gln Lys Leu Ile Leu Lys Tyr Lys Glu Ala Met				
385	390	395	400	
agc aac aag gcg tgc agg tat ttt gat gaa gga cgt ggg agc tgc cca				1248
Ser Asn Lys Ala Cys Arg Tyr Phe Asp Glu Gly Arg Gly Ser Cys Pro				
401	406	411	416	
ttt gga ggg aac tgt ttt tac aag cat gcg tac cct gat ggc cgt aga				1296
Phe Gly Gly Asn Cys Phe Tyr Lys His Ala Tyr Pro Asp Gly Arg Arg				
417	422	427	432	
gag gag cca cag aga cag aaa gtg gga aca tca agc aga tac cgg gcc				1344
Glu Glu Pro Gln Arg Gln Lys Val Gly Thr Ser Ser Arg Tyr Arg Ala				
433	438	443	448	
caa cga agg aac cac ttc tgg gaa ctc att gag gaa aga gag aac agc				1392
Gln Arg Arg Asn His Phe Trp Glu Leu Ile Glu Glu Arg Glu Asn Ser				
449	454	459	464	
aac ccc ttt gac aac gat gaa gaa gag gtt gtc acc ttt gag ctg ggc				1440
Asn Pro Phe Asp Asn Asp Glu Glu Glu Val Val Thr Phe Glu Leu Gly				
465	470	475	480	
gag atg ttg ctt atg ctt ttg gct gca ggt ggg gac gac gaa cta aca				1488
Glu Met Leu Leu Met Leu Leu Ala Ala Gly Gly Asp Asp Glu Leu Thr				
481	486	491	496	
gac tct gaa gat gag tgg gac ttg ttt cat gat gag ctg gaa gat ttt				1536
Asp Ser Glu Asp Glu Trp Asp Leu Phe His Asp Glu Leu Glu Asp Phe				
497	502	507	512	
tat gac ttg gat cta tag caacct tgcgtggcgt gtgaactggt ctgctgacct				1590
Tyr Asp Leu Asp Leu *				
513	518			
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tctcaactcc aggtgctgtc ctaagaattt ttaccagggt cctgtcttct caaccctca				1710
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gaagttccgg ggcctttgct gtgtgggata aacagta atg gcg gag gct gca act 175
Met Ala Glu Ala Ala Thr
1
ccc gga aca aca gcc aca aca tca gga gca gga gcg gca gcg gcg acg 223
Pro Gly Thr Thr Ala Thr Thr Ser Gly Ala Gly Ala Ala Ala Ala Thr
7 12 17 22

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Glu Gly Asp Asn Cys Arg Tyr Ser His Asp Leu Ser Asp Ser Pro Tyr	
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Ser Val Val Cys Lys Tyr Phe Gln Arg Gly Tyr Cys Ile Tyr Gly Asp	
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Arg Cys Arg Tyr Glu His Ser Lys Pro Leu Lys Gln Glu Glu Ala Thr	
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Ala Thr Glu Leu Thr Thr Lys Ser Ser Leu Ala Ala Ser Ser Ser Leu	
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Ser Arg Asn Ser Asn Phe Ala Thr Val Gly Ala Gly Ser Glu Asp Trp	
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Val Asn Ala Ile Glu Phe Val Pro Gly Gln Pro Tyr Cys Gly Arg Thr	
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Pro Tyr Ala Ala Val Gly Glu Cys Arg Tyr Gly Glu Asn Cys Val Tyr	
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Leu His Gly Asp Ser Cys Asp Met Cys Gly Leu Gln Leu Leu His Pro	
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Ser Pro Asn Lys Cys Ser Gly Met Arg Phe Pro Leu Gln Glu Glu Asn	
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Ser Val Thr His His Glu Val Lys Cys Gln Gly Lys Pro Leu Ala Gly	
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Ile Tyr Arg Lys Arg Glu Glu Lys Arg Asn Ala Gly Asn Ala Val Arg	
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Ser Ala Met Lys Ser Glu Glu Gln Lys Ile Lys Asp Ala Arg Lys Gly	
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Pro Leu Val Pro Phe Pro Asn Gln Lys Ser Glu Ala Ala Glu Pro Pro	
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Lys Thr Pro Pro Ser Ser Cys Asp Ser Thr Asn Ala Ala Ile Ala Lys	
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Gln Ala Leu Lys Lys Pro Ile Lys Gly Lys Gln Ala Pro Arg Lys Lys	
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Ala Gln Gly Lys Thr Gln Gln Asn Arg Lys Leu Thr Asp Phe Tyr Pro	
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